

TESTING SHNEIDMAN'S THEORY OF SUICIDE: PSYCHACHE AS A
PROSPECTIVE PREDICTOR OF SUICIDALITY AND COMPARISON WITH
HOPELESSNESS

by

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Abstract

Shneidman (1993) has theorized that psychache (i.e., intolerable psychological pain) is the key cause of suicide, and accounts for the effect of all other psychological factors. Two studies are presented that test Shneidman's theory, and compare the influence of psychache on suicidality relative to that of hopelessness. In the first study, a causal hypothesis was examined using a longitudinal design. Undergraduate students ($N = 588$) completed measures of psychache, hopelessness, and suicide ideation at two time points four months apart. Results supported the hypothesis that psychache has a causal role in suicidality, as change in suicide ideation was predicted by change in psychache. However, the hypothesis that psychache would fully mediate the effect of hopelessness was not supported, as only a small and partial mediation effect was evidenced, and change in hopelessness also contributed unique variance to the prediction of suicide ideation. In a second study, the hypotheses that psychache is necessary and sufficient for suicide were examined. Undergraduate students ($N = 1,333$) were prescreened for high and low levels of psychache and hopelessness, and those who met cutoff criteria ($N = 184$) were selected to make up four groups with combinations of these constructs. Groups were compared with respect to various measures of suicide ideation, motivations, and behaviours using one-way multivariate analyses of variance. In general, dependent measures significantly differed by level of psychache, but not by level of hopelessness. This pattern of group differences supported the hypothesis that psychache is necessary for suicide. However, the claim that psychache is sufficient was not consistently supported, as some suicide criteria were significantly elevated only for groups exhibiting high levels of both psychache and hopelessness. Taken together, the results of this dissertation

provide strong support for the key role of psychache in suicide and its parity with hopelessness as a statistical predictor of suicidality. These findings improve understanding of the suicidal state of mind, and have important implications for clinical practice.

Statement of Co-Authorship

The two manuscripts included as part of this dissertation were the result of a joint collaboration between the doctoral candidate, Ricardo Flamenbaum, and his supervisor, Dr. Ronald R. Holden. As the primary author, Ricardo Flamenbaum was responsible for research conceptualization and design, data collection and analyses, and manuscript preparation. Dr. Holden assisted with all aspects of the research, and in particular on research design and statistical analyses, as well as editorial feedback with respect to manuscript preparation.

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CHAPTER 1

General Introduction

Suicide is a significant public health problem. Worldwide suicide rates range from 1.1 to 51.6 per 100,000 persons, with the lowest rates typically seen in Latin American countries and the highest rates in Eastern European countries (World Health Organization, 2002). Canada falls between these two extremes, with a suicide rate of 11.6 per 100,000, or 3,743 suicide deaths in 2005 (Statistics Canada, 2009). Suicide is the leading cause of death among Canadian men ages 25 to 29 and 40 to 44 years, and women ages 30 to 34 (Langlois & Morrison, 2002). In a particularly troubling trend, suicide rates among adolescents have tripled over the past 50 years (Clark & Fawcett, 1992) placing suicide as the second leading cause of death in this age group (Langlois & Morrison, 2002). The societal cost of suicide has been estimated by one Canadian study at approximately \$850,000 per death (Clayton & Barceló, 1999), but the trauma of suicide on surviving friends and family is “catastrophic” and long-lasting (Jackson, 2003; McMenemy, Jordan, & Mitchell, 2008; Pompili, Lester, De Pisa, et al., 2008). Because suicide is a preventable cause of death, it is imperative that researchers and mental health practitioners work to better understand the causes of suicide, identify individuals at risk, and develop effective prevention programs.

Suicidality

In the study of suicide, the term *suicidality* has been used to refer to a continuum of suicidal manifestations ranging from thinking about suicide (i.e., suicidal ideation) through to making a plan, attempting suicide, and ultimately completing suicide. Studies (Kessler, Berglund, Borges, Nock, & Wang, 2005; Kessler, Borges, & Walters, 1999;

Nock et al., 2008) indicate that these occurrences comprise a progression of suicidal behaviour, with each expression conferring an increased risk for subsequent steps along the chain. For example, Nock et al. (2008), in a survey of almost 85,000 individuals across 17 countries, found that one-third of suicide ideators will make a suicide plan, and over half of those with a plan will make an attempt at some point in their lives, with the majority of these transitions taking place within one year of ideation onset. This pattern was equal to that found by Kessler et al. (1999) in the National Comorbidity Survey, a nationally representative survey of over 8,000 individuals conducted in the United States. It is further estimated that from 7% to 15% of those who attempt suicide will eventually die by suicide (Clark & Fawcett, 1992; Suominen et al., 2004), and that as many as 50% of individuals who die by suicide have made a previous attempt (Hawton & van Heeringen, 2009; Rudd, Joiner, & Rajab, 1996). Thus, a history of a previous suicide attempt presents a substantial risk for eventual death by suicide, and remains the only significant predictor of suicide when controlling for a variety of other relevant risk factors (Joiner, Conwell, et al., 2005). Given these findings and the low overall base rate of suicide attempts and completions, it is therefore customary, as well as necessary, to study suicide as a continuum of cognitions and behaviours.

Demographic Factors

In an effort to understand suicidal behaviour and identify individuals at risk for suicide, several large-scale epidemiological studies have isolated sociodemographic factors that are associated with a statistically higher risk of suicide. Factors such as male gender, age above 60, and White or Aboriginal ethnicity have shown the highest rates for suicide completions (Clark & Fawcett, 1992; Moscicki, 1999). Alternatively, suicide

attempters are more likely to be female, younger, single, with less education, and unemployed (Blackmore et al., 2008; Clarke, Colantonio, Rhodes, & Escobar, 2008; Nock et al., 2008). However, although such risk factors may be useful in identifying broad target groups for the allocation of public resources and large-scale prevention efforts, they lack the specificity required for assessment and intervention at the individual level (Hawton & van Heeringen, 2009; Robinson, 2008; Truant, O'Reilly, & Donaldson, 1991). For example, few clinicians would be inclined to attribute suicide risk to an individual based exclusively on their gender, or to minimize one's risk of suicide based on age, given the presence of other, more substantial markers. Therefore, demographic variables have restricted clinical utility in the assessment and management of suicide risk. Furthermore, although epidemiological studies explain *who* is most likely to engage in suicidal behaviour, they do not explain *why* these individuals do so. Psychological variables, on the other hand, are able to explain the motivation for suicide, and therefore provide a more complete understanding of this phenomenon. Psychological variables are also amenable to change, and so they may point the way to possible treatments and interventions for suicide.

Psychopathology and Depression

The often cited statistic that approximately 90% of suicides are associated with some form of psychopathology (Clark & Fawcett, 1992; Conner, Duberstein, Conwell, Seidlitz, & Caine, 2001; Hawton & van Heeringen, 2009; Joiner, Brown, & Wingate, 2005; Kessler et al., 2005; Lönnqvist et al., 1995; Moscicki, 1999), suggests that suicide may be a consequence of mental illness, with the implication that the wish to die will subside once the underlying disorder is treated (Jobes & Drozd, 2004). In particular,

mood disorders have shown the strongest association with suicide, with an estimated mortality rate ranging from 2% to 9% (Bostwick & Pankratz, 2000), and suicidality is seen as a symptom of major depression (American Psychiatric Association, 2000). Estimates of the prevalence of mood disorders among suicide completers are high but vary widely (Clark & Fawcett, 1992; Rihmer, 2007). For example, Lönnqvist et al. (1995) conducted psychological autopsies of 229 suicides in Finland, and found that 66% of victims had some form of depressive syndrome as a primary diagnosis, with almost one-third of victims suffering from a major depressive disorder. In their longitudinal study of almost 6,900 psychiatric outpatients, Brown, Beck, Steer, and Grisham (2000) found that 96% of suicides had a primary, secondary, or tertiary mood disorder (69% major depressive disorder). Although all mood disorders, including bipolar disorders (Joiner, Brown, et al., 2005; Rihmer, 2007), carry an increased risk of suicide, evidence shows that the vast majority (79-89%) of suicide attempts in mood disorders occur during a major depressive episode (Rihmer, 2007). In addition, scores on self-report measures of depression (e.g., Beck Depression Inventory) correlate highly with suicidal intent (Silver, Bohnert, Beck, & Marcus, 1971) and distinguish attempters from non-attempters (Larsson & Ivarsson, 1998). Thus, depression is a significant risk factor for suicide and individuals with mood disorders represent a particularly vulnerable group. However, clearly not all individuals who are depressed are also suicidal, and not all studies have found a relationship between symptom severity and suicidality (Clark & Fawcett, 1992; Davis, 1989; Johns & Holden, 1997), both of which suggest that depression is not inherently sufficient for suicide.

It is also important to recognize that although suicide is most closely linked with depression (Bostwick & Pankratz, 2000; Kessler et al., 1999; Moscicki, 1999), it is not a phenomenon exclusive to depression. For example, in a large, cross-sectional population survey of Canadian residents (Rhodes & Bethell, 2008), almost half of individuals reporting suicidal ideation in the past year did not have a diagnosis of major depression. In addition, suicidality is more strongly associated with impulse-control disorders than with mood disorders in middle- and low-income countries (Nock et al., 2008). Other disorders frequently associated with suicide include alcohol dependence and abuse, anxiety disorders, schizophrenia and schizoaffective disorder, and personality disorders (Clark & Fawcett, 1992; Lönnqvist et al., 1995). In a meta-analysis of the suicide risk in mental disorders, Harris and Barraclough (1997) found that of 44 disorders studied, 36 had a significantly increased suicide mortality rate. The authors concluded that “virtually all mental disorders have an increased risk of suicide excepting mental retardation and possibly dementia and agoraphobia” (Harris & Barraclough, 1997, p. 221).

The risk of suicide in schizophrenia is particularly high. It is estimated that 20-50% of individuals with schizophrenia attempt suicide, and 8-15% die by suicide (Harkavy-Friedman, Nelson, & Venarde, 2001). In a prospective study of 333 patients with schizophrenia, 60% reported suicidal ideation or attempts at least once during the period of their illness (Kim, Jayathilake, & Meltzer, 2003). Although comorbidity in suicide is common (Lönnqvist et al., 1995; Moscicki, 1999), suicidality in schizophrenia is not always associated with depression (Harkavy-Friedman et al., 2001). For example, Warman et al. (2004) found that the association between psychotic disorders and suicidal ideation remained significant even after controlling for depression. A history of

depression does not distinguish those with a past history of suicidal behaviour (Harkavy-Friedman et al., 2001); and in a sample of patients with schizophrenia and schizoaffective disorder, only half of suicide attempters reported that their attempt took place during an episode of major depression (Harkavy-Friedman, Nelson, Venarde, & Mann, 2004). Conversely, almost half of those with comorbid depression never made a suicide attempt (Harkavy-Friedman et al., 2004). Similar findings were reported in a high risk sample consisting of substance abusers and medically frail elders, in which major depression was not significantly associated with suicidality but other factors such as social support, anxiety, and age were (Vanderwerker, Chen, Charpentier, & Paulk, 2007). Therefore, in addition to not being a sufficient cause of suicide, depression also does not seem to be a necessary condition for suicide, and other psychological variables either related to or independent of psychiatric diagnoses, may have a more important role.

Hopelessness

Feelings of hopelessness have long been associated with suicidality (Marks & Haller, 1977; Robins, Schmidt, & O'Neal, 1957; Shaffer, 1974). In his early observations on the role of cognitions in depression, Beck (1963) noted that depressed patients' suicidal wishes were associated with beliefs about themselves as being "helpless" and of their situations as being "hopeless," together with a wish to escape from their intractable problems. Initial empirical studies with psychiatric inpatients and suicide attempters supported this association, consistently finding that suicidal intent was more strongly correlated with hopelessness than with depression; and, additionally, that the association between depression and suicidality became non-significant when hopelessness was statistically controlled (Dyer & Kreitman, 1984; Minkoff, Bergman, Beck, & Beck, 1973;

Wetzel, Margulies, Davis, & Karam, 1980), suggesting that hopelessness fully accounted for this relationship.

In light of these findings, Abramson, Metalsky, and Alloy (1989) suggested that only a subset of depressed individuals, those exhibiting “hopelessness depression,” will attempt to kill themselves. According to Abramson et al. (1989), hopelessness is a pessimistic cognitive style encompassing an expectation that highly desired outcomes will not occur or, conversely, that highly aversive outcomes will occur, as well as a belief that there is nothing one can do to change this outcome. Hopelessness is postulated to be a cognitive vulnerability and proximal sufficient cause of hopelessness depression, of which suicidality is a core symptom (Abramson et al., 2000). Hopelessness, and in turn, suicidality, are likely to develop when negative life events are viewed as important and attributed to stable and global causes (Abramson et al., 2000). Thus, hopelessness is also seen as a mediator in the relationship between negative life events and suicidality.

Many studies have provided support for Abramson and colleagues’ hopelessness theory of suicidality (Abramson et al., 2000), and have helped to establish hopelessness as the preeminent psychological predictor of suicide. As hypothesized by the hopelessness model, a stable and global attributional style was shown to interact with negative life events to predict both subsequent depressive reactions as well as increases in suicidal ideation in samples of college students (Joiner & Rudd, 1995; Metalsky, Halberstadt, & Abramson, 1987). As a statistical predictor, hopelessness has been shown to contribute unique variance to the prediction of suicidality after controlling for a variety of psychological and sociodemographic risk factors among psychiatric inpatients (Steer, Kumar, & Beck, 1993) and in the general population (Cox, Enns, & Clara, 2004). In a

large epidemiological study, hopelessness measured at baseline was significantly associated with suicide ideation, attempts, and completions during a 13-year follow-up period, even after adjusting for psychiatric diagnosis (Kuo, Gallo, & Eaton, 2004). In addition to mediating the link between depression and suicide (Dieserud, Røysamb, Ekeberg, & Kraft, 2001; Dyer & Kreitman, 1984), hopelessness has also been shown to be an important predictor of suicidality in diagnostic groups other than depression (e.g., Kim et al., 2003), and to mediate the effects of other psychological predictors on suicidality (Abramson et al., 1998; Dixon, Heppner, & Rudd, 1994).

Arguably the most impressive results in support of the importance of hopelessness in the prediction of suicide are provided in a series of longitudinal studies conducted by Beck and his colleagues, finding that elevated hopelessness scores significantly predicted future suicides among psychiatric inpatients and outpatients (Beck, Brown, Berchick, Stewart, & Steer, 1990; Beck, Brown, & Steer, 1989; Beck, Steer, Kovacs, & Garrison, 1985). For example, Beck et al. (1985) followed over 200 patients hospitalized for suicidal ideation for up to 10 years, and found that only baseline levels of hopelessness, but not depression or suicidal ideation, significantly predicted eventual suicides. In addition, a cutoff score on the Beck Hopelessness Scale correctly identified 10 of the 11 patients (91%) who committed suicide. Beck et al. (1990) replicated these results in a sample of almost 2,000 psychiatric outpatients followed up for a mean length of 3.5 years, and found that the cutoff score on the Beck Hopelessness Scale correctly identified 16 of the 17 individuals (94%) who eventually committed suicide. This group identified by the cutoff comprised a high-risk group that was 11 times more likely to commit suicide relative to the low-risk group (Beck et al., 1990).

Taken together, these results show that hopelessness is a significant risk factor and sensitive indicator of suicidality. However, support for the hopelessness model of suicidality is not unequivocal. There is disagreement about whether hopelessness depression constitutes a distinct subtype of the disorder (Haslam & Beck, 1994; Joiner et al., 2001); and though hopelessness has come to be accepted as an important predictor of suicide, this relationship has not been demonstrated across all studies. More specifically, studies have failed to find a significant link between hopelessness and suicidality among children and adolescents (Abramson et al., 2000). For example, in a sample of female adolescent suicide attempters, neither hopelessness nor depression significantly predicted suicidal intent (Rotheram-Borus & Trautman, 1988). This same study failed to find a difference in hopelessness scores between attempters and psychiatric controls. Furthermore, hopelessness appears to be a better predictor of suicide in clinical populations, whereas depression is a more important predictor in non-clinical populations (Rudd, 1990). In a college sample, hopelessness was found to be a partial mediator of negative life events and suicide ideation, while depression fully mediated this relationship (Konick & Gutierrez, 2005). This finding is contrary to Abramson et al.'s (2000) assertion that hopelessness is a more specific predictor of suicide than depression. In addition, suicide attempts were predicted by trait, or baseline, levels of hopelessness, but not by the intensity of hopelessness when depressed, nor by the increase in hopelessness that accompanied the depressive episode (Young et al., 1996). Thus, hopelessness may represent a more distal vulnerability in a chain culminating in suicidality, and variables other than hopelessness may be more closely linked with suicidality, both in terms of the strength of the relationship as well as in temporal proximity to the suicidal act.

In addition, although the Beck Hopelessness Scale, as the *de facto* measure of hopelessness (Beck, Weissman, Lester, & Trexler, 1974; McMillan, Gilbody, Beresford, & Neilly, 2007), has shown impressive capabilities in the prediction of suicide (e.g., Beck et al., 1990), subsequent analyses have somewhat tempered these results. A meta-analysis of the predictive ability of the Beck Hopelessness Scale in relation to suicide (McMillan, Gilbody, Beresford, & Neilly, 2007) shows that its pooled specificity (i.e., proportion of true negatives correctly identified) at the established cutoff score across studies for the prediction of suicide is relatively low. Thus, although the Beck Hopelessness Scale is a sensitive predictor of suicide; that is, it correctly identifies a large proportion of (but not all) suicidal individuals, the scale also tends to over-classify non-suicidal individuals as potentially suicidal. Also, this meta-analysis found the magnitude of risk associated with scores above the cutoff to be much lower than the odds ratio of 11 previously reported by Beck et al. (1990). Furthermore, Haaga, Dyck, and Ernst (1991) call attention to the fact that the sensitivity of a test is not the same as its positive predictive power. In other words, the scale's ability to correctly identify individuals who committed suicide (sensitivity) does not equal the proportion of individuals that score above a cutoff who actually commit suicide (positive predictive power). Using the latter criterion, the Beck Hopelessness Scale does not fare as well. Haaga et al. (1991) re-analyzed data from Beck and colleagues' longitudinal studies (Beck et al., 1990; Beck et al., 1989; Beck et al., 1985) and found positive predictive values of only .12 for the inpatient sample, and .014 for the outpatient sample using the self-report measure. In the prediction of any low base rate occurrence, such as suicide, it is inevitable to identify a large number of false

positives; nonetheless, these problems highlight the need for improved methods of detection of individuals at risk for suicide.

Psychache

E. S. Shneidman is considered to be one of the founders of suicidology. As such, he has greatly contributed to the understanding of the nature and psychology of suicide, and was among the first to explore and delineate the thinking processes of suicidal individuals (Jobes & Nelson, 2006). As he neared the end of his career and reflected on his past work and clinical experience, he concluded that all suicides are a direct result of immense psychological pain, or *psychache*, as he coined it (Shneidman, 1993).

Psychache is defined as an acute state of intense psychological pain associated with feelings of shame, humiliation, hurt, anguish, despair, loneliness, fear, and dread (Shneidman, 1993). In other words, it is the painful inner experience of negative emotions (Shneidman, 1999a). Alternatively, psychache is the mental pain of being perturbed (Shneidman, 1999a). *Perturbation* refers to one's inner turmoil, or being upset or mentally disturbed, and may be seen as a continuum from tranquil and serene to frenzied, hypermanic, and wildly disturbed (Shneidman, 1999a, 2005). Psychache is "the introspective recognition of perturbation" (Shneidman, 1999a, p. 87).

Psychache directly leads to suicide once the psychological pain surpasses an individual's threshold of tolerance, to the point where death is seen as the only means of escape. Shneidman (1993) outlined six components in the progression to suicide: (1) occurrence of life stresses and psychological insults (e.g., changes, failures); (2) influence of other vulnerabilities, such as genetic and social factors; (3) perception of life stresses as negative and painful; (4) perception of pain as unbearable and unacceptable; (5)

thought that cessation of consciousness is the solution for this pain; and (6) level of pain that exceeds one's threshold for tolerating or enduring psychache. The purpose common to all suicides, therefore, is to seek a solution for this pain; and the common goal of suicide is to "stop the painful flow of consciousness" (Shneidman, 1992, p. 4). This conceptualization of suicide as an escape from a painful internal state views suicide as a practical act, or problem-solving behaviour (Shneidman, 1992), albeit dramatic and extreme (Jobes & Drozd, 2004), and is consistent with observations by Beck (1963), and other theories of suicide, such as escape theory (Baumeister, 1990) and the cry of pain model (O'Connor, 2003).

Shneidman (1993) postulated that psychache is directly associated with suicidality, and mediates the effects of other relevant psychological factors, such as depression and hopelessness, in their association with suicide. All other suicidogenic factors are therefore secondary to the psychological pain that drives suicide. It is a mistake, according to Shneidman, to equate depression with suicide. As Shneidman (1993) asserted:

One can live a long, unhappy life with depression – not true of an acutely suicidal state. Theoretically, no one has ever died of depression – it is not a legitimate cause of death on the death certificate – but many people, too many, have died of suicide. (p. 146)

Shneidman decried the "Kraepilinian" view of suicide as a disease of the brain or symptom of mental illness (Jobes & Drozd, 2004; Shneidman, 1998, 2005) and was more interested in the phenomenology, or mentalistic aspect, of suicide as a "drama in the mind" (Shneidman, 1998, 2001, 2004, 2005). Although depression and other

psychopathology may be associated with suicide, they do not cause suicide. Rather, according to Shneidman (1993), suicide is caused by the extreme pain of negative affect, together with one's inability to tolerate this pain, and cognitive constriction to the point where suicide is seen as the only means of escape. Thus, all affective states are relevant to suicide only as they relate to psychache.

Psychache itself, and the negative emotions that give rise to it, stem from unfulfilled, frustrated, or thwarted psychological needs (Shneidman, 1993, 1998, 1999a, 2005). Shneidman (1993, 1999a, 2005) differentiated between two types of needs: (1) modal needs are those that define a person's personality in his or her day-to-day functioning, whereas (2) vital needs are those that an individual would die for, the frustration of which cannot be tolerated. According to Shneidman (1999a), individuals have idiosyncratic combinations of these needs, reflecting their personality as well as their specific vulnerabilities to suicide. He was influenced by Murray's (1938) taxonomy of 20 psychological needs, but singled out particular needs as most often implicated in suicide and organized these in five general clusters or themes (Shneidman, 1999a, 2005): (1) thwarted love, acceptance, and belonging — related to frustrated needs for succorance and affiliation; (2) fractured control, predictability, and arrangement — related to frustrated needs for achievement, autonomy, order, and understanding; (3) assaulted self-image and avoidance of shame, defeat, humiliation, and disgrace — related to frustrated needs for affiliation, defendance, and shame-avoidance; (4) ruptured key relationships and attendant grief and bereftness — related to frustrated needs for affiliation and nurturance; and (5) excessive anger, rage, and hostility — related to frustrated needs for dominance, aggression, and counteraction. Shneidman (1980) declared that "There are

many pointless deaths, but never a needless suicide” (p. 180); and so identifying and addressing an individual’s frustrated needs may help to reduce his or her level of psychache and prevent suicide (Shneidman, 1993, 1999a, 2005).

The Measurement of Psychache

The concept of psychache was initially operationalized by Shneidman (1999b), who proposed the Psychological Pain Assessment Scale (PPAS). Inspired by Murray’s (1935) Thematic Apperception Test, and reflective of Shneidman’s phenomenological approach, the PPAS was primarily a projective test. Subjects are given a definition of psychache, and are asked to rate their current mental pain on a scale from 1 to 9. Next, subjects are asked to rate the psychological pain of the principal characters depicted in five ambiguous pictures. Finally, subjects are asked to rate their worst psychological pain ever experienced, and indicate which feelings (e.g., guilt, hopelessness, sadness) were present in that pain. Shneidman (1999b) believed that the most important component in the PPAS was in the last page, wherein subjects were asked to write an essay describing how their worst pain felt, the circumstances around it, and how it resolved itself. He was very much interested in subjects’ unique stories, which would allow them to “reveal personal thresholds, and to relate a psycho-dynamically laden narrative” (Shneidman, 1999b, p. 290). Given its projective nature and single-item ratings, the PPAS is problematic from a psychometric standpoint and thus has not been extensively used in research, though a few researchers (Lester, 2000; Pompili, Lester, Leenaars, Tatarelli, & Girardi, 2008) have studied it. Lester (2000) used only the current and worst psychache rating items, and found that worst psychache was associated with current depression and history of suicidal ideation, but not a history of suicide attempts. Pompili, Lester,

Leenaars, et al. (2008) included the projective ratings in their analyses, but found that these items did not differentiate individuals at risk for suicide versus those not at risk, or individuals with a history of past attempts versus those with no such history. Somewhat contrary to Lester (2000), Pompili, Lester, Leenaars, et al. (2008) found that ratings of current and worst ever psychache both differed based on current suicidal risk, but not based on a history of past attempts.

More recently, other authors (Holden, Mehta, Cunningham, & McLeod, 2001; Orbach, Mikulincer, Sirota, & Gilboa-Schechtman, 2003) have employed a more empirically-based approach to constructing measures of psychological pain. Holden et al.'s (2001) Psychache Scale was devised to directly measure and test Shneidman's concept of psychache (e.g., "I feel psychological pain," "My soul aches"). It is the briefest of the measures, consisting of 13 items rated on a 5-point Likert scale. An initial pool of 31 items were rationally generated from Shneidman's (1993) description of psychache and administered to 294 undergraduate students. In the interest of arriving at a maximally homogeneous measure, items were retained only if they exhibited a full range of responses and had item-total correlations equal to or above .60. This item selection process resulted in a 13-item measure, with an alpha reliability coefficient of .92 in the development sample. Further analyses (Holden et al., 2001) showed that the scale had medium to high correlations with various suicide criteria, and successfully distinguished attempters from non-attempters. Although the Psychache Scale correlates highly with both depression and hopelessness (DeLisle & Holden, 2009; Mills, Green, & Reddon, 2005), exploratory and confirmatory factor analyses revealed that these are overlapping but distinct constructs (DeLisle & Holden, 2009).

Orbach, Mikulincer, Sirota, and Gilboa-Schechtman (2003) have developed the Orbach and Mikulincer Mental Pain Scale (OMMP) as a broader, multidimensional measure of mental pain, and based its content on individuals' subjective experiences of mental pain. An initial pool of 220 items rated on a 5-point Likert scale were constructed from content analyses of interviews with volunteers and others who were likely to have experienced mental pain (e.g., psychiatric patients, bereaved). Subsequent item analysis procedures with two additional samples of volunteers resulted in a 44-item scale with 9 factors. These have been labeled as: (1) Irreversibility (e.g., "I have lost something that I will never find again"), (2) Loss of control (e.g., "I am afraid of the future"), (3) Narcissist wounds (e.g., "I am rejected by everybody"), (4) Emotional flooding (e.g., "My feelings change all the time"), (5) Freezing (e.g., "I feel numb and not alive"), (6) Self-estrangement (e.g., "I feel that I am not my old self anymore"), (7) Confusion (e.g., "I cannot concentrate"), (8) Social distancing (e.g., "I want to be left alone"), and (9) Emptiness ("I can't find meaning in my life"). Alpha reliability coefficients for these factors ranged from .75 to .95. With the exception of social distancing, all factors were significantly correlated with depression and anxiety symptoms (Orbach, Mikulincer, Sirota, et al., 2003). In relation to suicidality, all factors except for narcissist wounds and social distancing differentiated suicidal inpatients from psychiatric and non-psychiatric controls (Orbach, Mikulincer, Gilboa-Schechtman, & Sirota, 2003). In particular, factors of irreversibility, loss of control, and emptiness carried the most variance in the differentiation of suicidal and non-suicidal controls (Orbach, Mikulincer, Gilboa-Schechtman, et al., 2003).

In addition to these, researchers have also used other, more indirect measures that tap into the psychache construct. For example, the Reasons for Attempting Suicide Questionnaire (RASQ; Holden, Kerr, Mendonca, & Velamoor, 1998; Johns & Holden, 1997) consists of 14 motives given by self-poisoning suicide attempters, and respondents rate their agreement with these statements on a 5-point Likert scale. Eight of the items reflect motivations relating to external reasons (e.g., “Show how much I love someone”), and six items are associated with internal perturbations (e.g., “To get relief from a terrible state of mind”). Of the two, internal perturbations-based reasons has shown the stronger association with suicide criteria (Holden et al., 1998; Holden & Kroner, 2003; Johns & Holden, 1997), and psychache (Flamenbaum & Holden, 2007). Although this subscale does not measure the intensity of one’s psychological pain, it corresponds to psychache by assessing one’s agreement with the kinds of motivations that give rise to mental pain (Shneidman, 1999a).

Empirical Evidence for Psychache

Psychological pain is a common theme in both suicide notes and the reported experiences of depressed patients (e.g., "Can't live without my wife, this pain and misery is too much;" "The pain of depression is unbearable. I just want to die to escape from it;" Mee, Bunney, Reist, Potkin, & Bunney, 2006, p. 682). In fact, in a study of 30 patients with depression who also had a life-threatening physical illness or trauma (e.g., heart attacks, cancer, multiple surgeries), the large majority (28 out of 30) described their psychological pain as worse than any physical pain they had experienced (Osmond et al., 1984, as cited in Mee et al., 2006). In order to uncover the neurological basis of psychological pain, Mee et al. (2006) reviewed several brain imaging studies of

psychological pain states such as induced sadness, social exclusion, grief, and anticipation of physical pain. Convergent evidence from these studies revealed that there is a great deal of overlap in brain areas associated with physical and psychological pain. The anterior cingulate, insula, and prefrontal cortex are associated with both conditions, whereas the somatosensory cortex is exclusive to experiences of physical pain (Mee et al., 2006). Given that these results are inferred from indirect analogues of psychological pain, these findings can only be considered preliminary. Nonetheless, these results suggest that psychache is a distinct experience not unlike, and in many cases, subjectively worse than that of physical pain.

The relationship between psychache and suicidality has been empirically supported. Psychache correlated significantly with suicidal ideation in samples of college students (Flamenbaum & Holden, 2007; Holden et al., 2001; Lester, 2000); and in a sample of psychiatric inpatients, ratings of current and worst ever psychache were significantly higher among those who were currently suicidal compared to those who were not (Pompili, Lester, Leenaars, et al., 2008). Among college students, psychache has also been shown to differentiate those with a previous history of attempts from those who have never attempted (Flamenbaum & Holden, 2007; Holden et al., 2001), and was significantly associated with both the number of attempts as well as the level of intent (i.e., wish to die) associated with individuals' most recent suicide attempt (Flamenbaum & Holden, 2007). Berlim et al. (2003) assessed psychache indirectly in terms of psychological quality of life, and found that this measure correlated more highly with suicidal ideation than other quality of life indices. Furthermore, the relationship remained significant after controlling for depression and hopelessness. Similarly, psychache and

internal perturbations-based reasons for attempting suicide remained significantly associated with suicide criteria after controlling for hopelessness and depression in both clinical and nonclinical populations (DeLisle & Holden, 2009; Holden et al., 1998; Holden et al., 2001; Johns & Holden, 1997). These results show that psychache is uniquely related to suicidality, and provides additional information independent of hopelessness in the prediction of suicide.

Moreover, psychache becomes a better predictor than hopelessness as the lethality of the suicide criteria increases. Mendonca and Holden (1996) distinguished between psychiatric inpatients who reported general suicidal desires and those who had actually formulated a plan for suicide. Only unusual thinking, and not hopelessness or depression, was associated with the more serious form of suicidal ideation. The unusual thinking measure used in this study consisted of items such as trouble concentrating, thoughts of death or dying, and feeling blocked about getting things done, and may reflect the sense of cognitive distortion and constriction discussed by Shneidman (1993). Similar findings emerged in forensic (Holden & Kroner, 2003) and student (Johns & Holden, 1997) samples, where canonical correlation analyses revealed that internal perturbation-based reasons were associated with an action-oriented dimension of suicidality involving suicide preparation and previous attempts, whereas hopelessness and depression were associated with more passive, negative cognitions such as suicidal desire. In a large-scale study of 954 patients with a major affective disorder, severe psychic anxiety, or perturbation, predicted patients who committed suicide within one year of assessment, whereas severe hopelessness at the time of assessment was predictive of longer-term suicide risk (Fawcett et al., 1990). Similarly, chart reviews of 76 psychiatric inpatients

who committed suicide while in hospital revealed that 79% of these had severe psychic anxiety or agitation within one week of their suicide (Busch, Fawcett, & Jacobs, 2003). As these results suggest, psychache and an internal state of perturbation are associated with more serious and acute manifestations of suicidality, which is consistent with the hypothesis that psychache is the most proximal predictor of suicide.

According to Shneidman (1993), psychache should mediate the effect of other relevant psychological factors in the prediction of suicide. Indeed, Flamenbaum and Holden (2007) found that psychache fully mediated the association between perfectionism and suicidality, and Keefer, Holden, and Gillis (2009) found that psychache fully mediated the relationship between alexithymia and suicide ideation. Thus, these studies demonstrate that the risk of suicide associated with these personality factors can be fully accounted for by the increased levels of psychological pain that they produce. However, research on the role of psychache in suicide is still in its infancy, and although evidence for the eminence of psychache as a predictor of suicide looks promising, further research is necessary to test the theory that psychache mediates the effect of other suicidogenic factors.

A limitation of the extant research is the cross-sectional design of the studies, which severely limit inferences of causality. Whereas it is hypothesized that psychache causes suicidality (Shneidman, 1993), cross-sectional studies are unable to establish directionality. Another limitation of the research thus far is that most studies have examined constructs that are conceptually related to psychache, such as internal perturbations and psychic anxiety, but not psychache itself. It is necessary to continue to conduct research that directly examines the construct of psychache and its relationship

with suicidality, and that also tests causal models in an effort to understand why individuals seek to kill themselves.

Overview of Chapters

Shneidman (1999a) asserted that psychache is a necessary and sufficient cause of suicide (“No psychache, no suicide,” p. 87). This dissertation presents two empirical studies that test this proposition. In order to fully evaluate the validity of Shneidman’s model, it is also important to compare how the construct of psychache compares to other psychological predictors of suicide. Given that hopelessness has been implicated as the preeminent predictor of suicide (e.g., Beck et al., 1990), the present research will evaluate how psychache and hopelessness relate to suicidality. The first study presented (Chapter 2) tests Shneidman’s theory that psychache causes suicide, by examining whether psychache is prospectively associated with suicidality. In the second study (Chapter 3), psychache and hopelessness are compared with respect to suicidal presentation and degree of suicidal risk associated with each construct. Chapter 4 summarizes the findings, and discusses implications for future research and clinical practice.

CHAPTER 2

PSYCHACHE, HOPELESSNESS, AND THE PROSPECTIVE PREDICTION OF SUICIDE IDEATION IN COLLEGE STUDENTS

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Abstract

Shneidman (1993) proposed that psychache (i.e., psychological pain) is the most common cause of suicide. As a test of this theory, the present longitudinal study evaluated the contribution of psychache and hopelessness to the prediction of suicide ideation. A sample of 588 undergraduate students completed measures of psychache, hopelessness, and suicide ideation at two time points four months apart. SEM analyses evaluated three models describing hypothesized longitudinal relationships among the variables. Neither psychache nor hopelessness at Time 1 predicted suicide ideation at Time 2, controlling for baseline ideation. The best fit obtained was for a model in which changes in psychache and hopelessness significantly predicted changes in suicide ideation. In addition, psychache partially mediated the association between hopelessness and suicide ideation. Results generally support Shneidman's theory and provide stronger evidence for a causal role of psychache in suicide. Implications for assessment and treatment, as well as the study's limitations, are discussed.

Keywords: psychache, hopelessness, suicide ideation, prospective, causality

Psychache, Hopelessness, and the Prospective Prediction of Suicide Ideation in College Students

Suicide consistently ranks among the top ten causes of death in every country and accounts for nearly one million deaths per year worldwide (World Health Organization, 2002). Given its great impact on society and individuals (McMenamy et al., 2008; Pompili, Lester, De Pisa, et al., 2008), researchers (Rudd et al., 2006; Weir, 2001), government agencies (Health Canada, 1994; U.S. Public Health Service, 1999), and the World Health Organization (2000) have called for improved methods of detection and treatment of suicidal individuals. With this aim, researchers have identified several demographic (e.g., Nock et al., 2008), biological (e.g., Mann et al., 2000), developmental (e.g., Brezo et al., 2007), social/environmental (e.g., Blackmore et al., 2008), and psychological (Conner, Duberstein, Conwell, Seidlitz, & Caine, 2001) factors that are purported to increase one's risk of suicide. However, on an individual level, many of these variables lack specificity, and lead to a large number of false positives. Furthermore, knowledge of the mechanism, or motivation, for suicide is crucial as it allows for an understanding of the suicidal process and highlights avenues for intervention. Psychological variables are unique in their potential to serve this purpose.

Suicide in the absence of psychopathology is rare (Hawton & van Heeringen, 2009), and major depression, in particular, has been the disorder most frequently associated with suicide risk (Joiner, Conwell, et al., 2005; Rihmer, 2007). However, depression in and of itself is not a specific enough marker for suicide, as the majority of depressed individuals do not attempt suicide (Bostwick & Pankratz, 2000). It has, therefore, been proposed that suicidality is a symptom of a specific depressive syndrome

that is marked by hopelessness (Abramson et al., 1989). Hopelessness involves a negative expectation about outcomes or events in one's life, together with a sense of inevitability, or helplessness, about these events (Abramson et al., 2000; Abramson et al., 1989). It is a product of a cognitive attributional style that views negative life events as personally meaningful and due to stable and global causes, and is postulated to be a proximal and sufficient cause of hopelessness depression and, consequently, suicide (Abramson et al., 2000; Abramson et al., 1989). Thus, as a psychological variable, hopelessness is conceptualized to be a more specific predictor of suicide than depression.

The association between hopelessness and suicide has been well-established in the literature. Hopelessness mediates the relationship between depression and suicidal intent in psychiatric inpatients (Dyer & Kreitman, 1984; Minkoff et al., 1973; Wetzel et al., 1980), and is a unique statistical predictor of suicidal ideation and attempts among psychiatric inpatients (Steer et al., 1993) and in the general population (Cox et al., 2004). Hopelessness is also a robust prospective predictor of suicide. In samples of psychiatric inpatients (Beck et al., 1989; Beck et al., 1985) and outpatients (Beck et al., 1990), hopelessness was a significant predictor of eventual suicides during follow-up periods of 5 to 10 years. Likewise, in a community-based epidemiological study (Kuo et al., 2004), hopelessness significantly predicted suicide ideation, attempts, and completion over a 13-year follow-up period. Given the preeminence of hopelessness as a psychological predictor of suicide, it is therefore important to assess the merits of alternative predictive models above and beyond the contribution of hopelessness.

In contrast to the hopelessness theory of suicide (Abramson et al., 2000), Shneidman (1993) proposed that psychache, or intense psychological pain, is the most

proximal and direct psychological cause of suicide. Psychache is defined as the acute mental pain of negative emotions, such as shame, humiliation, anguish, guilt, fear, dread, and despair (Shneidman, 1993, 1999a); or, more generally, the pain of being mentally distressed (i.e., perturbed) (Shneidman, 1999b). Suicide is an attempt to escape this pain when it becomes unbearable, coupled with the idea that death, or cessation of consciousness, is the only means of escape (Shneidman, 1992, 1993). Thus, suicide is seen as a form of problem-solving behaviour (Shneidman, 1992), rather than a symptom of psychopathology.

Although the role of psychache in suicide has not been empirically studied as extensively as hopelessness, research conducted to date has shown support for Shneidman's theory. In clinical and nonclinical samples (Berlim et al., 2003; DeLisle & Holden, 2009; Flamenbaum & Holden, 2007; Holden et al., 1998; Holden & Kroner, 2003; Holden et al., 2001; Johns & Holden, 1997), psychache and reasons for attempting suicide reflecting internal perturbations are significant and unique predictors of various self-reported and clinician-rated suicide criteria, including suicide ideation, history of suicide attempts, and suicide intent, controlling for other factors such as depression and hopelessness. Furthermore, evidence also suggests that psychache may be more closely associated with suicide than hopelessness. In a forensic sample, internal perturbations were associated with more active aspects of suicidality, such as a history of attempts and suicidal ideations involving concrete plans, whereas depression and hopelessness were associated with a more passive, generalized wish to die (Holden & Kroner, 2003).

Positive associations in the extant research support Shneidman's (1993) view of psychache as relevant for suicide; however, these are limited to cross-sectional

observations, and the importance of psychache for future suicidality is unknown. The validity of psychache as a clinical predictor of suicide hinges on its ability to predict eventual suicide. Moreover, establishing a temporal order is also important in order to assess the hypothesized causal role of psychache (Cook & Campbell, 1979), thus providing a more complete test of Shneidman's theory. Fawcett et al. (1990) report results from the NIMH Collaborative Study of Depression, a long-term follow-up study of 954 depressed individuals, which found that a state of perturbation reflected by severed psychic anxiety symptoms (e.g., worry, fear, panic attacks) statistically differentiated those who committed suicide within one year of assessment from those who survived the one-year follow-up period. In contrast, hopelessness and baseline suicidality were associated with a longer-term risk as they predicted the occurrence of suicide after one year (Fawcett et al., 1990). This finding shows that, among vulnerable individuals, those who are highly perturbed and agitated have a more immediate risk for suicide; and can be taken to support the hypothesis that psychache is a more proximal predictor of suicide. However, because the construct of psychache was not directly examined, this conclusion is only inferential, and more direct tests of Shneidman's (1993) theory are required.

The purpose of this study is to test the psychache theory of suicidality using a longitudinal design. Two models are proposed that delineate the potential causal associations between psychache and suicide ideation. In the first model (Figure 2.1), psychache is positioned as a prospective predictor of suicide ideation, controlling for baseline levels of hopelessness and suicide ideation. In the second model (Figure 2.2), it is expected that changes in psychache will predict changes in suicide ideation, controlling

for hopelessness, using a residualized change scores approach. The distinction between these two models is that whereas in the first model psychache temporally precedes changes in suicide ideation, the second model posits that changes in psychache co-occur with and predict changes in suicide ideation.

According to Shneidman (1993), all other psychological factors and affective states, such as depression and hopelessness, are only relevant to suicide to the extent that they relate to psychache; or in other words, to the extent that they cause mental pain. Thus, psychache is postulated to mediate the association between other psychological predictors and suicidality. In one test of this hypothesis, Flamenbaum and Holden (2007) found that psychache mediated the relationship between suicidality and a more distal vulnerability factor, perfectionism. In the present study, a third model (Figure 2.3) will be tested to determine whether psychache mediates the association between hopelessness and suicide ideation.

Method

Participants and Procedure

This study consisted of two assessment points. At Time 1, 1,333 undergraduate students enrolled in an introductory psychology class at Queen's University, Kingston, Ontario, Canada completed measures of psychache, hopelessness, and suicidal ideation as part of a broader prescreening questionnaire package administered at the beginning of the fall term during class time. Four months later, participants were sent an email soliciting their participation in a follow-up assessment. They were directed to an online questionnaire consisting of the same measures as Time 1, and were also asked to report on their suicide history, including number of attempts, and recency, method, and intent of

their most recent attempt. As compensation, participants who took part in the follow-up were entered into draws for prizes.

A total of 524 participants completed the follow-up four months after the initial assessment. Those who did not respond were sent an additional email two months later (i.e., six months after Time 1), and 87 participants completed the follow-up after this reminder. Participants who completed the follow-up at four months and at six months did not differ by age, $t(599) = .552, p = .58$, gender (Fisher's exact test, $p = .692$), or any of the measures at Time 2, Wilk's lambda = .996, $F(4, 564) = .608, p = .657$.

In sum, 611 participants completed Time 2 at an average follow-up period of four months after Time 1. Those who did not participate in the follow-up did not differ with respect to age, $t(1291) = .902, p = .367$, gender (Fisher's exact test, $p = .176$), or any of the baseline measures, Wilk's lambda = .995, $F(4, 1188) = 1.50, p = .20$. Of the 611 participants, 23 did not have sufficient data, either in Time 1 or Time 2, to be included in the analyses and were excluded from the study. This left a total of 588 participants (74.5% female) upon which subsequent analyses are based. They ranged in age from 17 to 42 years ($M = 18.33, SD = 1.87$). No information was collected on race or ethnicity. Participants were treated in accordance with the ethical guidelines established by the Queen's University Research Ethics Board.

Materials

The Psychache Scale. The Psychache Scale (Holden et al., 2001) is a 13-item measure of psychache, or psychological pain. Items are coded on 5-point Likert scales, and explicitly avoid any reference to suicidality (e.g., "My soul aches," "My psychological pain affects everything I do"). Alpha reliability coefficients over .90 and

medium to large correlations with suicide criteria have been reported in forensic and college samples (Holden et al., 2001; Mills et al., 2005). Additionally, the Psychache Scale significantly differentiates between suicide attempters and non-attempters (Holden et al., 2001). DeLisle and Holden (2009) have shown that the Psychache Scale taps into a construct that is distinct from, but overlapping with depression and hopelessness, and contributes unique variance in the statistical prediction of suicidal ideation.

Beck Hopelessness Scale (BHS). The BHS (Beck, Weissman, Lester, & Trexler, 1974) is a measure of the degree to which a person holds negative expectations about the future. It consists of 20 true-false statements, nine of which are reverse-keyed. Alpha reliability coefficients of .86 and .83 have been reported for psychiatric and forensic samples, respectively (Durham, 1982). In college samples, alpha reliability coefficients have ranged from .65 to .85 (DeLisle & Holden, 2009; Durham, 1982; Holden & Fekken, 1988). The BHS is fairly stable, with a reported three-week test-retest reliability of .85 for college students (Holden & Fekken, 1988). The BHS has good construct and predictive validity (Glanz, Haas, & Sweeney, 1995), and has been shown to predict eventual suicides among psychiatric inpatients (Beck et al., 1985) and outpatients (Beck et al., 1990).

Beck Scale for Suicide Ideation (BSS). The BSS (Beck & Steer, 1993) is a self-report, 19-item, 3-point measure of suicidal ideation and intent. Alpha reliability coefficients of .90 and .87 have been reported for inpatient and outpatient ideator samples, respectively (Beck & Steer, 1993). The self-report BSS correlated highly with a clinician-administered version in samples of inpatients ($r = .90$) and outpatients ($r = .94$) (Beck, Steer, & Ranieri, 1988). Factor analysis has yielded two subscales (Beck, Brown,

& Steer, 1997) that were used in the present study: Suicidal Motivation refers to individuals' ambivalence about living or dying, as well the frequency and duration of suicidal thoughts; and Suicidal Preparation refers to an active component of planning the suicidal act. Confirmatory principal components and exploratory analyses in a sample of suicide attempters support this two-factor model (Holden & DeLisle, 2005), with alpha reliability coefficients of .85 and .73 for motivation and preparation components, respectively.

Results

Descriptive Statistics

All data were screened for accuracy and missing values. Scale scores for participants with missing data were prorated, provided there was no more than 10% missing data for a particular scale. Means, standard deviations, and reliability coefficients of all measures at Times 1 and 2 are shown in Table 2.1. (Intercorrelations among all Time 1 and 2 measures and descriptive statistics for the entire prescreening sample can be found in Appendices B and C, respectively). The characteristics of the measures were generally consistent with those previously reported for college student samples (DeLisle & Holden, 2009; Flamenbaum & Holden, 2007; Holden et al., 2001). The Psychache Scale means were slightly lower than those found by Holden et al. (2001; $M = 23.3$), DeLisle and Holden (2009; $M = 21.91$), and Flamenbaum and Holden (2007; $M = 21.98$) in similar samples. Hopelessness scores were higher than those reported by Durham (1982; $M = 2.32$) and Holden and Fekken (1988; $M = 2.67$), but similar to those found in more recent studies with college students (DeLisle & Holden, 2009; $M = 3.72$), and offenders (Holden & Kroner, 2003; $M = 3.88$). With regard to suicidal ideation,

participants in the current study reported similar levels of motivation and preparation as those in other college student samples (DeLisle & Holden, 2009; Flamenbaum & Holden, 2007). There were no significant changes from baseline to follow-up, with the exception of hopelessness, $t(578) = 5.16, p < .001$. Students reported greater levels of hopelessness at Time 2 relative to Time 1, although the increase was small (Cohen's $d = 0.21$).

Suicide attempt history and characteristics were assessed at Time 2. Of 588 participants, 21 (3.6%) reported having attempted suicide at some point in their lives. This rate is lower than those reported in previous college student samples, which have typically ranged from 6% to 10% (DeLisle & Holden, 2009; Flamenbaum & Holden, 2007; Meehan, Lamb, Saltzman, & O'Carroll, 1992). Attempters were 71.4% female and ranged in age from 17 to 31 years ($M = 19.86, SD = 3.84$). The average number of attempts was 2.75 ($SD = 2.02$, range: 1-10), and the mean time since the last attempt was 42.24 months ($SD = 40.59$, range: 0.75-180). Only one subject reported having attempted suicide during the follow-up period. The most common method used was drugs or pills, followed by slashing or cutting. On average, attempters' level of intent associated with their most recent attempt was 3.35 ($SD = 1.09$) on a scale from 1 (*not very intent*) to 5 (*extremely intent*). As a group, attempters did not differ from non-attempters with respect to gender (Fisher's exact test, $p = .799$) or age, $t(20.31) = -1.88, p = .08$. A comparison of their baseline measures (Table 2.2) revealed significantly higher levels of psychache, hopelessness, and suicidal ideation among attempters than non-attempters.

SEM Analyses

The three hypothesized models were analyzed using structural equation modeling (SEM), and fits of the measurement and structural models were tested using maximum

likelihood estimation in AMOS 16 (Arbuckle, 2007). A latent variable representing suicidal ideation was indicated by the two BSS subscales of Suicidal Motivation and Suicidal Preparation. To create latent constructs of hopelessness and psychache, an item parceling procedure (Russell, Kahn, Spoth, & Altmaier, 1998) was used to divide the BHS and the Psychache Scale each into three equally weighted parcels. Using the Time 1 scores, the 20 items of the BHS and the 13 items of the Psychache Scale were each factor analyzed using principal components. For each measure, factor loadings on the first component were rank ordered based on their loading weights, and used to equally distribute scale items among three parcels. For Times 1 and 2, scores on the parcels were summed and used as manifest indicators of the underlying constructs. Using this parceling approach, each parcel represents the underlying construct to an equal degree (Russell et al., 1998).

The present SEM analyses utilized a nonparametric bootstrapping approach in order to obviate issues associated with data non-normality. With bootstrapping, the sampling distribution of a statistic is derived empirically from the given sample. Therefore, it is not necessary that the observed data conform to the same requirements (e.g., normal distribution) upon which traditional parametric tests are predicated. Bootstrapping involves the following steps (Mooney & Duval, 1993): (1) the sample is treated as a population and from this population a large number of samples of size N are drawn randomly with replacement; (2) for each “resample” the statistic of interest is calculated, and (3) the frequency distribution of this statistic is used as an empirical estimate of its sampling distribution. This bootstrapped sampling distribution is then used to generate confidence intervals for significance testing and to make inferences about

population parameters. In the present study, the bootstrapping capabilities in AMOS 16 (Arbuckle, 2007) were used to construct confidence intervals around path coefficients, covariances, and factor loadings in the measurement and structural models. Because bootstrapping in AMOS 16 requires that there be no missing data, only participants with complete data were included, resulting in a sample size of 514 for all SEM analyses. In all analyses, bias-corrected confidence intervals based on 10,000 resamples are reported.

In constructing the models, guidelines recommended by Farrell (1994) for analyzing longitudinal data with SEM were followed. In particular, because repeated measurement of the same variable often produces correlated errors (Farrell, 1994), error terms of the same manifest variables of each latent construct were allowed to correlate over time. For example, the error terms of the psychache indicators at Time 1 were correlated with the same error terms at Time 2. In addition, loadings of the same manifest variables on their respective latent constructs were constrained to equality in order to ensure measurement invariance over time (Hoyle & Smith, 1994).

Analysis of the Measurement Model

To assess the overall fit of the measurement model and the accuracy of the underlying structure of the latent variables used in the model, a confirmatory factor analysis (Anderson & Gerbing, 1988) was performed with correlations among all latent variables. The measurement model showed good fit to the data, $\chi^2(86, N = 514) = 166.82, p < .001$; CFI = .99; SRMR = .02; RMSEA = .04 (90% confidence interval [CI]: .03, .05). Factor loadings of manifest indicators on their respective latent variables, as well as correlations among all latent variables are shown in Table 2.3. All of the factor loadings were significant and ranged from .75 to .96, which suggests that all of the latent

variables were adequately measured by their indicators. In addition, all latent variables were significantly correlated.

Analysis of the Structural Models

To examine the hypothesis that psychache prospectively predicts changes in suicide ideation, controlling for hopelessness, a model was constructed specifying synchronous (i.e., cross-sectional) associations among the latent variables at Times 1 and 2, stability paths in which Time 2 variables are predicted by their previous levels at Time 1, and cross-lagged paths from psychache and hopelessness at Time 1 to suicide ideation at Time 2. This model (Figure 2.4) fit the data well, $X^2(90, N = 514) = 224.48, p < .001$; CFI = .98; SRMR = .07; RMSEA = .05 (90% CI: .04, .06). However, contrary to expectations, the cross-lagged associations between Time 1 psychache and hopelessness, and Time 2 suicide ideation were not significant, as suicide ideation at Time 2 was most strongly predicted by previous levels of suicide ideation, accounting for 70.7% of the variance in Time 2 suicide ideation. Thus, this model suggests that neither psychache or hopelessness contribute uniquely to the prediction of suicidal ideation beyond baseline levels of suicidality.

A second model was tested which illustrated the hypothesis that changes in psychache predict changes in suicide ideation, controlling for simultaneous changes in hopelessness. To construct this model, correlational associations between psychache and suicide ideation at Time 2, and hopelessness and suicide ideation at Time 2, were changed to direct (i.e., “causal”) paths. Given that this model (Figure 2.5) is equivalent to the first, its fit to the data is unchanged from the previous model (MacCallum, Wegener, Uchino, & Fabrigar, 1993). The hypothesis that changes in psychache would predict

changes in suicide ideation was supported. Psychache at Time 2 was significantly associated with Time 2 suicide ideation, controlling for both of these variables at Time 1. In addition, this relationship was significant controlling for a similar association between hopelessness and suicide ideation, indicating that psychache has added value beyond hopelessness to the prediction of suicide ideation. In all, this model accounted for 83.9% of the variance in Time 2 suicide ideation.

Finally, to test the hypothesis that (change in) psychache would act as a mediator between hopelessness and suicide ideation, an additional path was added between hopelessness at Time 1 and psychache at Time 2. This third model (Figure 2.6) showed a significantly better fit to the data than the previous models, $\chi^2(89, N = 514) = 204.85, p < .001$; CFI = .98; SRMR = .05; RMSEA = .05 (90% CI: .04, .06), $\Delta\chi^2(1) = 19.63, p < .001$, and accounted for 84.6% of the variance in Time 2 suicide ideation. To assess the significance of the proposed indirect effect, bootstrapped confidence intervals were generated in AMOS 16 (Arbuckle, 2007). MacKinnon et al. (2002) demonstrated that traditional tests of mediation (e.g., causal steps, Sobel's test) tend to lack power, and tests of significance based on bootstrapped distributions of the indirect effect are generally recommended (Mallinckrodt, Abraham, Wei, & Russell, 2006; Shrout & Bolger, 2002). In this model, the indirect effect of Time 1 hopelessness on Time 2 suicide ideation, was significant (*indirect effect* = .27, $p < .001$); however, AMOS does not provide estimates for specific indirect effects, and so this test reflects the effect of Time 1 hopelessness through both Time 2 psychache and Time 2 hopelessness, on Time 2 suicide ideation¹.

¹ To address this limitation, an additional model was tested which excluded hopelessness measured at Time 2. This model fit the data well, $\chi^2(54, N = 514) = 128.44, p < .001$; CFI = .99; SRMR = .05; RMSEA = .05 (90% CI: .04, .06), and the indirect effect of

Examination of the path coefficients in Figure 6 indicates that approximately 22% of the indirect effect is carried through psychache (*indirect effect* = $.23 \times .26 = .06$).

Discussion

Suicide is a leading, but preventable, cause of death. Improving the detection of individuals at risk and understanding the motivation for suicide are key requisites for the development of effective treatment and prevention strategies. Although suicide is a multifaceted problem, Shneidman (1993) has summarized all suicides as resulting from extreme psychological pain, or psychache. Previous research (e.g., Holden et al., 1998; Holden & Kroner, 2003) has shown support for the importance of psychache as a statistical predictor of suicidality, and its added value beyond other, more established psychological factors, such as hopelessness and depression (DeLisle & Holden, 2009). The present study sought to address limitations of previous studies and extend research by implementing a longitudinal design, thereby providing a more rigorous test of Shneidman's causal hypothesis.

In order to delineate possible longitudinal associations involving psychache, hopelessness, and suicide ideation implied by Shneidman's (1993) theory, three models were proposed that suggested different mechanisms of action of psychache on suicide

hopelessness on suicide ideation through psychache was significant (*indirect effect* = $.08$, $p < .01$). Because hopelessness may also conceivably mediate the relationship between psychache and suicide ideation, an alternative model was tested that did not include psychache at Time 2. This model also showed good fit, $X^2(54, N = 514) = 129.04$, $p < .001$; CFI = $.98$; SRMR = $.04$; RMSEA = $.05$ (90% CI: $.04, .06$), but the indirect effect of psychache on suicide ideation through hopelessness was not significant ($.02$, $p = .48$). Thus, psychache is a significant mediator of hopelessness, but hopelessness is not a significant mediator of psychache, in the prediction of suicide ideation. It should be noted that psychache is more accurately described as a suppressor variable (MacKinnon, Krull, & Lockwood, 2000), given that the direct relationship between hopelessness and suicide ideation becomes negative when the effect of psychache is partialled out. These two models are shown in Appendix D.

ideation. The hypothesis that psychache would prospectively predict changes in suicide ideation was not supported, as neither psychache nor hopelessness showed significant longitudinal associations with suicide ideation. Instead, change in suicide ideation was predicted by changes in psychache and hopelessness. The two-wave longitudinal design used in this study also provides previously unreported test-retest information about the Psychache Scale (Holden et al., 2001) that also has implications for psychache as a construct. Psychache was shown to be moderately stable over four months ($r = .55$), and somewhat less stable than hopelessness ($r = .67$) and suicide ideation ($r = .79$) over the same time period. Thus, these data indicate that psychache shows some trait-like properties, in that individuals who experience psychache are generally more likely to report elevated levels of psychache four months later, as well as a susceptibility to fluctuations over time, consistent with Shneidman's (1993) characterization of psychache as part of an acute suicidal state.

There may be several reasons why a longitudinal association between psychache and changes in suicide ideation was not found. Most importantly, suicide ideation was shown to be remarkably stable over the four-month period of the study, as shown by a lack of significant change over this time period and a path coefficient in the model of almost .90. This strong association left very little variance to be predicted by other variables. Indeed, approximately 71% of the variance in suicide ideation was accounted for by its previous levels. The stability of suicide ideation in this study was higher than what has been reported in previous longitudinal studies (Beevers & Miller, 2004; Shahar, Bareket, Rudd, & Joiner, 2006). However, it should be noted that those studies implemented longer follow-up periods (i.e., 6 months), their samples were comprised of

psychiatric inpatients hospitalized for either depression or suicidality, and baseline assessments were conducted at the time of admission and before some form of treatment. In contrast, the sample in the present study represents a relatively healthy, non-distressed group. Given that suicide often occurs in the context of a crisis or severe life stress (Moscicki, 1999), the suicide ideation reported by the current sample may therefore be best characterized as low-level and chronic, thus showing little variation over time.

In addition, the four-month interval utilized in this study may not have been appropriate to detect the expected longitudinal association between psychache and suicide ideation. Whereas a longer follow-up period may have yielded greater changes in suicide ideation and reduced its prediction by baseline levels, it is also possible that psychache exerts its effect over a shorter time frame. For example, Busch et al. (2003) found that 79% of patients who committed suicide reported severe psychic anxiety within one week of their suicide, suggesting that states of extreme perturbation are part of an acute suicidal state. In fact, Shneidman's (1993) conceptualization of psychache as the direct, and most proximal, psychological cause of suicide implicitly places psychache in close temporal sequence with suicidal manifestations. This view is supported by the results of the present study, which found that increases in suicide ideation are concomitant with increases in psychache, but are not predicted by levels of psychache four months earlier. Thus, increases in suicidality appear to be a direct response to increasing levels of psychache, consistent with Shneidman's (1993) theory that the purpose of suicide is to end psychological pain.

The effect of psychache on suicide ideation was independent of the contribution of hopelessness. As an established and robust psychological predictor of suicide (e.g.,

Beck et al., 1990), hopelessness was included in this study in order to assess the relative merit of psychache as a predictor of suicide ideation, as well as to control for a potential confound in this hypothesized relationship. The results of this longitudinal study are similar to previous cross-sectional reports (DeLisle & Holden, 2009; Holden et al., 2001), which found that psychache and hopelessness both contribute unique variance to the prediction of various suicide criteria. Extending these findings to a longitudinal model, the present study found that psychache, hopelessness, and suicide ideation fluctuate concurrently over time, and increases in suicide ideation can be attributed to simultaneous increases in both psychache and hopelessness.

Shneidman's (1993) theory also predicts that psychache, as the most proximal cause of suicide, should mediate the effect of other relevant predictors of suicidality. This theory was partially supported by the present findings, as psychache mediated the distal association between hopelessness and suicide ideation. Although the indirect effect was small, the inclusion of the path from hopelessness at Time 1 to psychache at Time 2 significantly improved the fit of the model. However, psychache did not fully mediate the relationship between hopelessness and suicide ideation, and change in hopelessness over time was also a significant predictor. Therefore, while part of the effect of hopelessness on suicide ideation may be attributed to psychache, psychache does not fully account for this relationship.

The relationship between hopelessness and suicide ideation found in this study also warrants further comment. Although hopelessness has been shown to be a robust predictor of eventual suicide (Beck et al., 1990; Beck et al., 1989; Beck et al., 1985), it did not prospectively predict changes in suicide ideation in the present study. Other

studies (Beevers & Miller, 2004; Shahar et al., 2006) have also failed to find significant longitudinal relationships between hopelessness and suicide ideation, and the present study replicates those findings with a non-clinical sample. Therefore, although hopelessness may be a distal risk factor for suicidal actions, evidence is accumulating to suggest that hopelessness is more proximally related to suicidal thinking. Results of the structural model in this study indicate two possible pathways from hopelessness to suicide ideation four months later: (1) hopeless individuals who remain or become more hopeless over time, and (2) hopeless individuals who go on to experience psychache as a result of their hopelessness, are both more likely to report increased suicide ideation. Curiously, when these two pathways were included in the model, an unexpected negative relationship emerged between Time 1 hopelessness and Time 2 suicide ideation. In other words, when controlling for future hopelessness and psychache, hopelessness became negatively and significantly associated with increases in suicide ideation. One possible explanation for this suppression effect (MacKinnon et al., 2000) is that individuals who are transiently, but not chronically, hopeless are less likely to become suicidal. This interpretation is consistent with results from a longitudinal study of depressed inpatients (Young et al., 1996), which found that trait levels of hopelessness (i.e., measured at baseline or during episodes of remission), but not hopelessness while depressed, predicted eventual suicide attempts. Taken together, this evidence suggests that chronic hopelessness (e.g., as in a cognitive style) is more important for suicidality than time-limited, or possibly situation-bound, feelings of hopelessness.

Overall, the results of this study generally support Shneidman's (1993) psychache theory of suicide and help to more clearly define the relationship between psychache and

suicidality. This study joins others (e.g., DeLisle & Holden, 2009) in demonstrating psychache to be as important as hopelessness in the development, and therefore the prediction, of suicidality. Nonetheless, contrary to Shneidman's (1993) assertion that all other psychological factors are secondary to psychache, hopelessness in this study remained a significant contributor to suicidality. Suicidality, then, may be seen as a consequence of a hopeless cognitive style, together with the experience of unbearable psychological pain.

Consequently, both psychache and hopelessness are important targets for assessment and intervention in the prevention of suicide. Results from the present study suggests that frequent and continuous monitoring of hopelessness and psychache over time may be particularly important in order to detect changes in suicide risk. Evidence shows that suicidal intent is not always communicated in direct ways, and direct references to suicidality become increasingly more rare as individuals become more serious about suicide (Oravecz & Moore, 2006). There is a need, therefore, for indirect, yet specific, markers of suicidality in order to obtain an accurate assessment of suicidal risk. Furthermore, Rudd et al. (2006) differentiated between risk factors and warning signs of suicide. Whereas risk factors are generally stable characteristics (e.g., age, psychiatric diagnosis, history of attempts) that are distally related to suicide, warning signs are those which are proximally associated with a suicidal crisis and indicate imminent risk. The associations between psychache and hopelessness with suicide ideation found in the present study suggest that these predictors fall in the latter category. Highlighting the importance of these variables for the assessment of suicide risk, Jobes and Drozd (2004) have developed a brief, theory-based assessment form that incorporates

both hopelessness and psychache. Results from the present study provide support for such an approach, and further, encourage the ongoing assessment of these constructs in the management of potentially suicidal patients, even if prior suicidal ideation has not been explicitly expressed.

Previous authors have called for treatment approaches that address suicidality independent of psychiatric diagnosis (Jobes & Drozd, 2004; Leenaars, 2006; Rudd, 2004); and recent research has shown positive results for such interventions that focus on specific deficits associated with suicide risk, such as problem-solving, emotion regulation, and maladaptive cognitions (Brown et al., 2005; Eskin, Ertekin, & Demir, 2008; Tarrier, Taylor, & Gooding, 2008; Williams, Duggan, Crane, & Fennell, 2006). Shneidman (2004, 2005) emphasized that therapy for suicidal individuals should be *anodynic*, that is, it should reduce pain. According to Shneidman (1999a, 2005), pain can be reduced by addressing individuals' frustrated or unfulfilled psychological needs, such as those for love and acceptance, control, and shame-avoidance. Current therapeutic approaches, such as cognitive therapy (Brown et al., 2005), and mindfulness (Williams, Duggan, Crane, & Fennell, 2006), may also be used to help individuals reconceptualize their psychological pain as bearable (Shneidman, 2001, 2005). The present results suggest that addressing individuals' psychological pain shows promise as a strategy for suicide prevention, and such an approach warrants further development and study.

The results of this study must be considered in the context of its limitations. With regard to sample characteristics, participants in the study were self-selected undergraduate students reporting relatively low levels of suicidality and distress, and this restricted range of scores on the measures may have attenuated the relationship between

predictors and suicide ideation. In addition, the small number of men in the study precluded an analysis of gender differences, and so any potential moderating impact of gender is not known. Generalizability of the results is therefore limited to a majority female student population. However, it should also be noted that university students are themselves of interest for suicide research, given that suicide ideation is highly prevalent in this population (Gutierrez, Osman, Kopper, Barrios, & Bagge, 2000; Meehan et al., 1992), and suicide is second only to accidents as the leading cause of death among students (Kashani & Priesmeyer, 1983). Furthermore, research with student and clinical samples often yield similar findings (Vredenburg, Flett, & Krames, 1993). This is true of psychache in the research so far, which has shown similar associations with suicide criteria in both student and forensic samples (Holden & Kroner, 2003; Johns & Holden, 1997). Nonetheless, these factors do not negate the need for continued research with other clinical and community-based samples in order to further validate the role of psychache in suicide.

Furthermore, findings from the present study can only be generalized to the prediction of suicide ideation. Although psychache and hopelessness distinguished attempters from non-attempters in the present study, only suicide ideation was measured longitudinally and was, therefore, included in the structural models. Thus, the role of psychache in the prediction of future suicide attempts or completions remains unknown. It is not unreasonable, however, to assume that thinking about suicide is a prerequisite for suicidal actions. Given the low base rate of suicide attempts and completions, it is often necessary to conduct research on other, more common, suicidal manifestations that comprise a continuum of suicidality. Suicide ideation is itself a predictor of suicide

(Brezo et al., 2007), and a majority of first attempts occur shortly after ideation onset (Kessler et al., 2005; Kessler et al., 1999; Nock et al., 2008). Therefore, the prediction of suicide ideation is itself of interest, and attempts to intervene may be more successful at earlier stages of suicidality. Nonetheless, suicide ideation is not a perfect proxy for suicide, and further research is necessary to test Shneidman's (1993) theory with the full range of suicidal manifestations.

In this study, a longitudinal design was employed in order to test a causality hypothesis proposed by Shneidman (1993) relating psychache and suicidality. Although such a design provides a more rigorous test of causality than cross-sectional methodologies, it cannot by itself prove a causal association. The requirements for causal inferences are strict and rarely met (Hoyle & Smith, 1994). Well-controlled studies that rule out potential confounds and experimentally manipulate variables are necessary to establish cause, but even such studies may not be foolproof (Farrell, 1994). In the study of suicide, experimental control may not be tenable for a variety of practical and ethical reasons, and longitudinal designs may be the only plausible method to investigate causal associations in this area (Farrell, 1994). Furthermore, by including hopelessness in this study, a likely psychological confound was statistically controlled in examining the association between psychache and suicidal ideation. However, it is unlikely that every possible confound can be included in any single study (Farrell, 1994), and future studies should make efforts to assess the relevance of psychache on suicide against competing influences.

In addition, the present study provides a test of an *a priori* model based on Shneidman's (1993) theory. This does not, however, preclude the fact that other,

equivalent models may fit the data just as well. For example, a model in which suicide ideation predicts subsequent psychache may show good statistical fit. However, such reciprocal effects are not uncommon, and the value of ascertaining causal dominance between two variables has been questioned (Farrell, 1994; Rogosa, 1979). Instead, determinations of directionality should be based on theoretical grounds (Hoyle & Smith, 1994); and, because the overarching goal of this line of research is to prevent suicide, models that assess causal influences and predictors of suicidality are of particular importance.

The current study joins others (DeLisle & Holden, 2009; Holden et al., 1998; Holden & Kroner, 2003) in demonstrating the importance of psychache for the prediction of suicidality. By implementing a longitudinal design, this study demonstrates that increases in psychache, together with hopelessness, contribute to the development of suicide ideation. In so doing, this study takes an important step in providing more substantial support for Shneidman's (1993) argument that psychache causes suicide. Given these findings, as well as the previously discussed limitations, more research on the role of psychache in suicide is warranted. Specifically, it will be important to replicate these results with a variety of populations, particularly in clinical samples where the risk of suicide is greater. It is also necessary to assess the suicidogenic role of psychache with regard to other forms of suicidality, particularly attempts and completions. Because these events are rare, long-term prospective studies with high-risk populations may be necessary. Conversely, more fine-grained research may reveal valuable information about the effect of psychache on suicidality over shorter time periods (i.e., days, weeks), as suggested by the current findings. Finally, suicide often occurs in the context of stressful

or aversive social and environmental influences (Moscicki, 1999). Although Shneidman (1993) acknowledges the role of the “vicissitudes of life” (p. 146) in his conceptualization, the relationship between life events and psychache has not been clearly defined. The role of negative life events in the relationship between psychache and suicidality will need to be examined before a psychache model of suicide can be fully articulated. Clearly, many questions remain concerning the role of psychache in suicide. Given the increasing evidence provided by this and other studies (e.g., DeLisle & Holden, 2009) of the unique contribution of psychache for suicide, as well as the implications for the identification and treatment of suicidal individuals, future research in this area is a worthwhile and valuable enterprise.

Table 2.1

Descriptive Statistics of All Measures at Times 1 and 2

	<i>N</i>	Possible Range	Time 1			Time 2			<i>t</i>	Effect Size (Cohen's <i>d</i>)
			<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α		
Psychache	572	13-65	20.60	8.08	0.93	20.28	9.24	0.96	-0.91	-0.04
Hopelessness	579	0-20	3.35	3.38	0.84	4.00	3.99	0.86	5.16**	0.21
Suicidal Motivation	553	0-18	1.02	1.76	0.70	0.98	1.95	0.80	-0.64	-0.03
Suicidal Preparation	520	0-18	2.80	2.42	0.67	2.79	2.54	0.70	-0.20	-0.01

Note. ** $p < .001$. Cohen's *d* absolute values of .20, .50, and .80 correspond to small, medium, and large effect sizes, respectively (Cohen, 1992).

Table 2.2

Comparisons between Attempters and Non-attempters

	Non-attempters			Attempters			<i>t</i>	Effect Size (Cohen's <i>d</i>)
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>		
Psychache	561	20.36	7.90	21	26.48	10.95	2.53*	0.81
Hopelessness	564	3.24	3.26	21	5.95	4.92	2.50*	0.76
Suicidal Motivation	547	0.91	1.58	20	3.70	3.33	3.74**	1.67
Suicidal Preparation	515	2.60	2.14	20	7.50	3.89	5.61***	2.20

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Where appropriate, degrees of freedom were adjusted for heterogeneity of variance. Cohen's *d* values of .20, .50, and .80 correspond to small, medium, and large effect sizes, respectively (Cohen, 1992).

Table 2.3

Standardized Factor Loadings and Intercorrelations of Latent Variables in the Measurement Model

Indicators	Time 1 Latent Variables			Time 2 Latent Variables		
	Hopelessness	Psychache	Suicide Ideation	Hopelessness	Psychache	Suicide Ideation
BHS 1	.78**			.82**		
BHS 2	.82**			.83**		
BHS 3	.75**			.80**		
PSYC 1		.95**			.96**	
PSYC 2		.91**			.94**	
PSYC 3		.88**			.94**	
SMOT			.87**			.88**
SPREP			.76**			.79**
<u>Latent Variables</u>						
<u>Time 1</u>						
Hopelessness	-					
Psychache	.58**	-				
Suicide Ideation	.60**	.57**	-			
<u>Time 2</u>						
Hopelessness	.74**	.47**	.64**	-		
Psychache	.44**	.55**	.52**	.69**	-	
Suicide Ideation	.48**	.46**	.88**	.68**	.66**	-

Note. $N = 541$. BHS 1-3 = three parcels from the Beck Hopelessness Scale; PSYC 1-3 =

three parcels from the Psychache Scale; SMOT = Suicidal Motivation subscale of the

Beck Scale for Suicide Ideation; SPREP = Suicidal Preparation subscale of the Beck Scale for Suicide Ideation. All estimates based on 10,000 bootstrapped samples. ** $p < .001$.

Figure Captions

Figure 2.1. First hypothesized model, showing psychache as a prospective predictor of suicide ideation, controlling for hopelessness and baseline suicide ideation.

Figure 2.2. Second hypothesized model, showing change in psychache predicting change in suicide ideation, controlling for change in hopelessness.

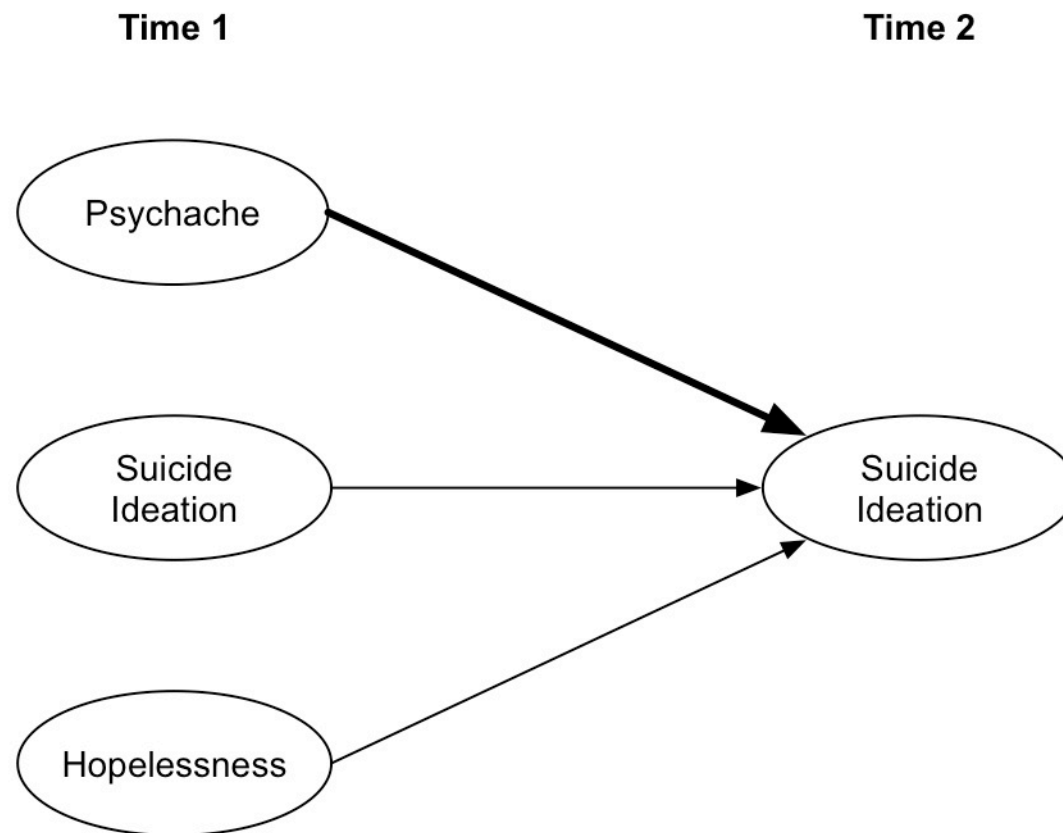
Figure 2.3. Third hypothesized model, showing psychache as a mediator of hopelessness and suicide ideation.

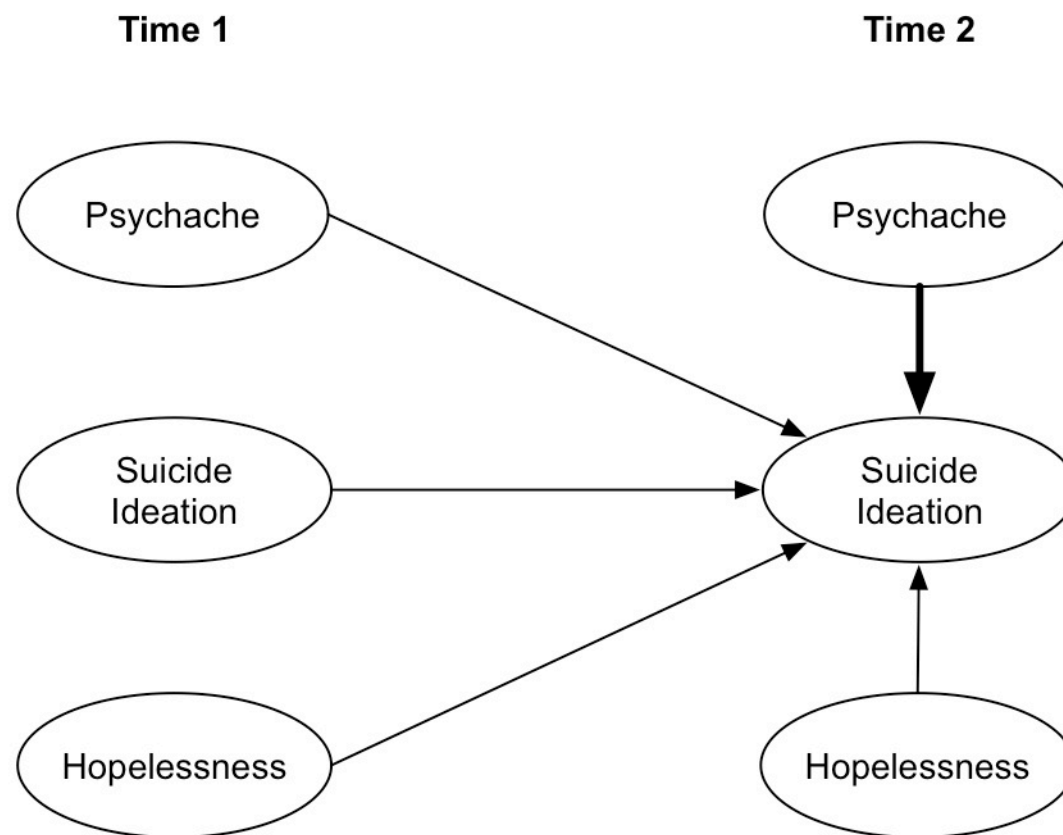
Figure 2.4. Structural model (N = 514) showing cross-lagged paths from psychache and hopelessness at Time 1 to suicide ideation at Time 2. PSYC 1-3 = three parcels from the Psychache Scale. BHS 1-3 = three parcels from the Beck Hopelessness Scale. SMOT = Suicidal Motivation subscale of the Beck Scale for Suicide Ideation. SPREP = Suicidal Preparation subscale of the Beck Scale for Suicide Ideation. Path coefficients and significance levels are derived from 10,000 bootstrap samples. ** $p < .01$.

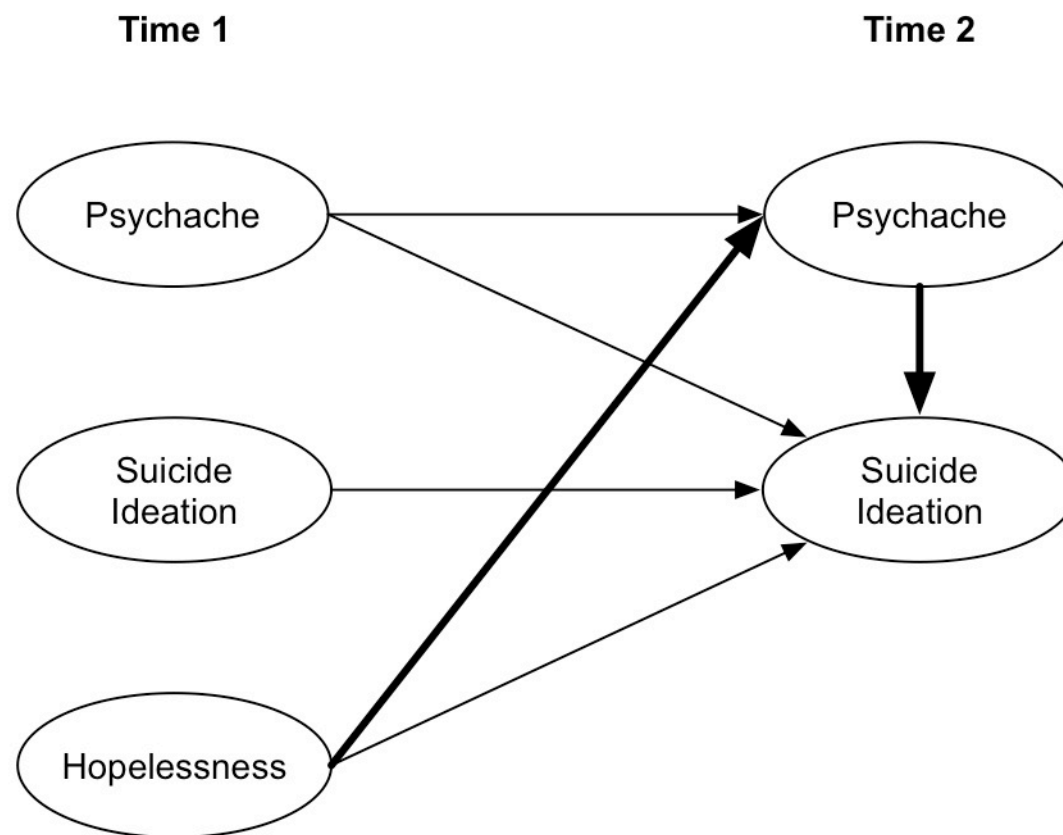
Figure 2.5. Structural model (N = 514) showing changes in psychache and hopelessness predicting change in suicide ideation. PSYC 1-3 = three parcels from the Psychache Scale. BHS 1-3 = three parcels from the Beck Hopelessness Scale. SMOT = Suicidal Motivation subscale of the Beck Scale for Suicide Ideation. SPREP = Suicidal Preparation subscale of the Beck Scale for Suicide Ideation. Path coefficients and significance levels are derived from 10,000 bootstrap samples. * $p < .05$, ** $p < .01$.

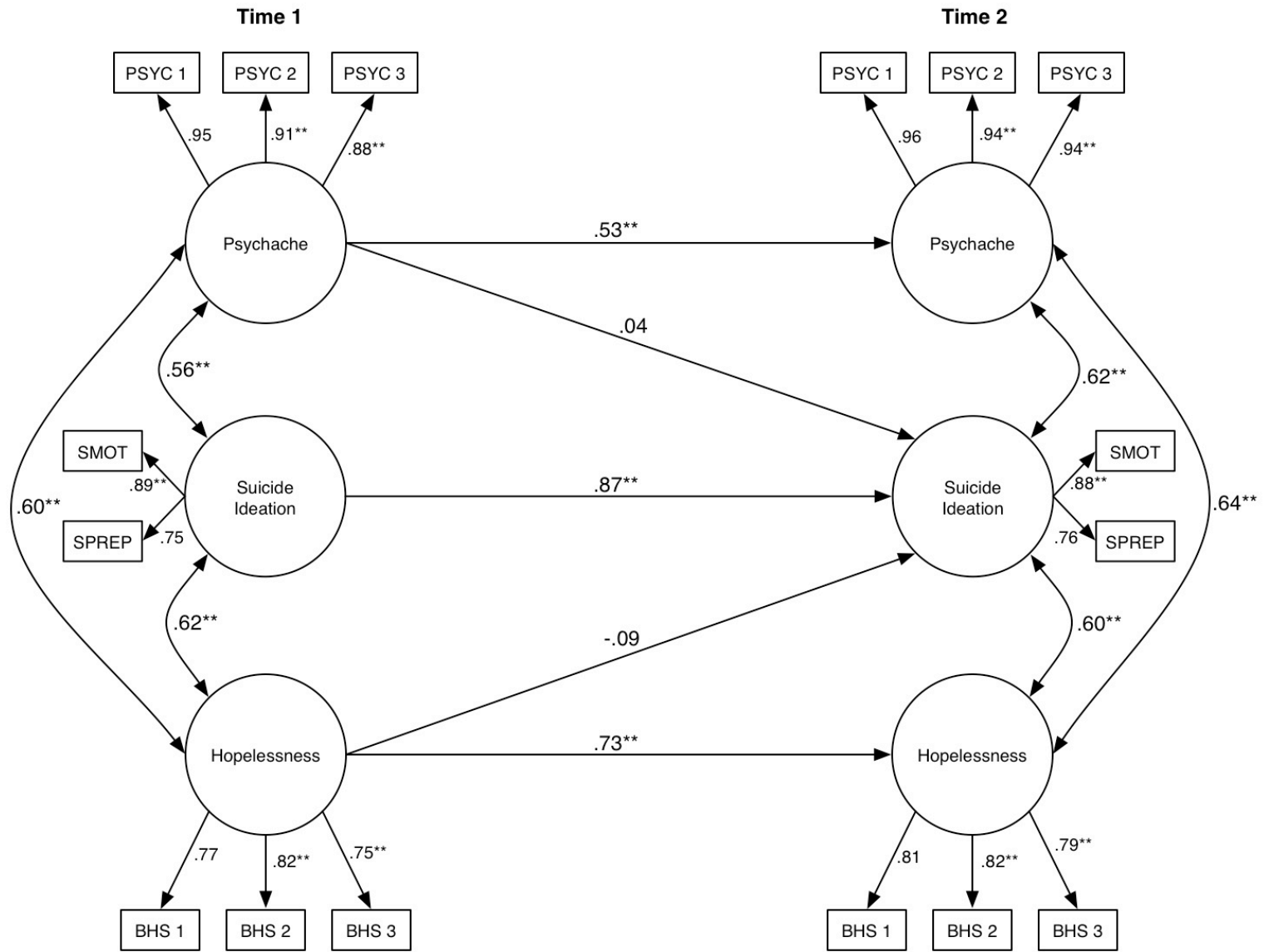
Figure 2.6. Structural model (N = 514) including mediation of hopelessness and suicide ideation by psychache. PSYC 1-3 = three parcels from the Psychache Scale. BHS 1-3 = three parcels from the Beck Hopelessness Scale. SMOT = Suicidal Motivation subscale of the Beck Scale for Suicide Ideation. SPREP = Suicidal Preparation subscale of the

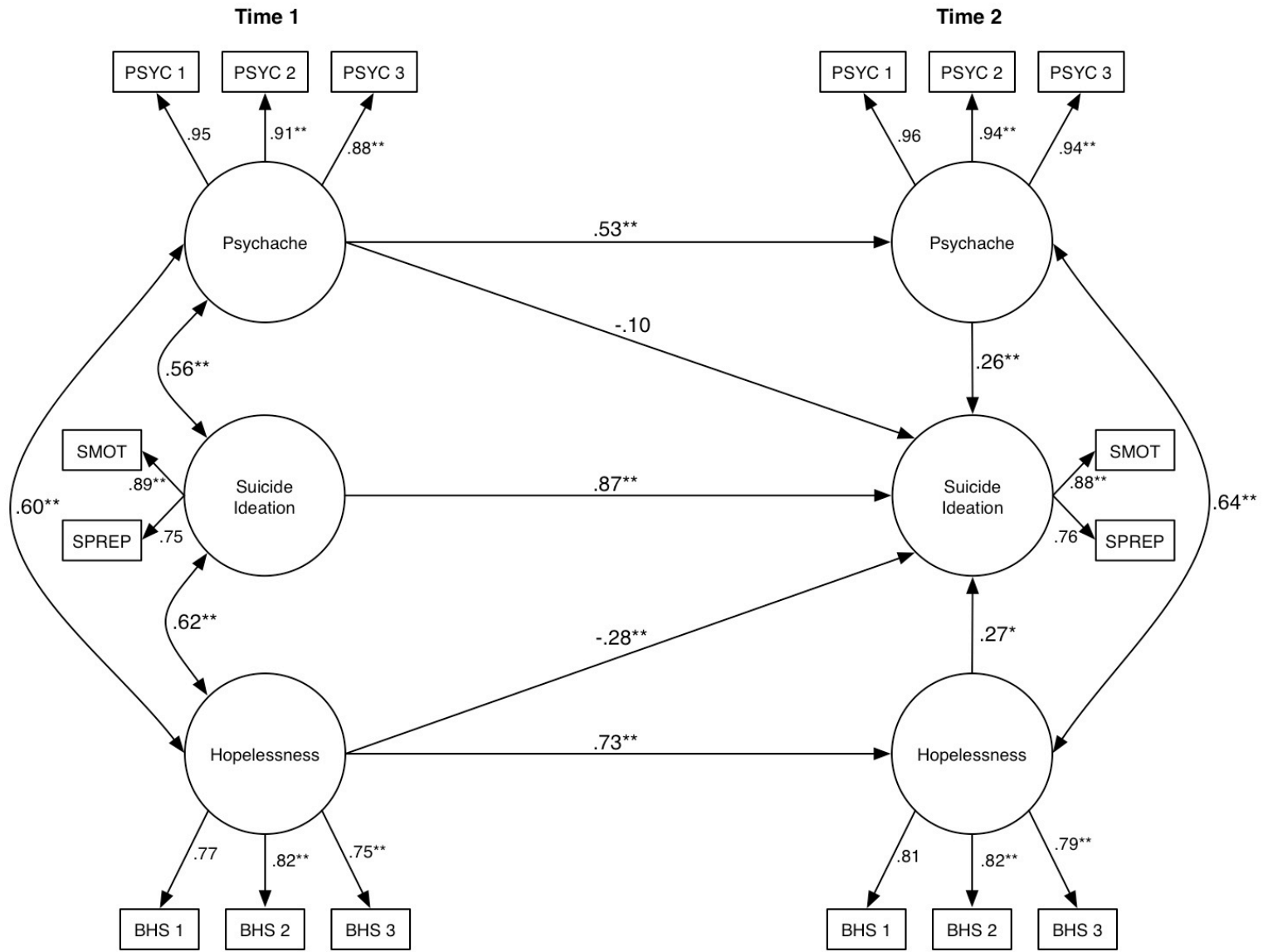
Beck Scale for Suicide Ideation. Path coefficients and significance levels are derived from 10,000 bootstrap samples. * $p < .05$, ** $p < .01$.

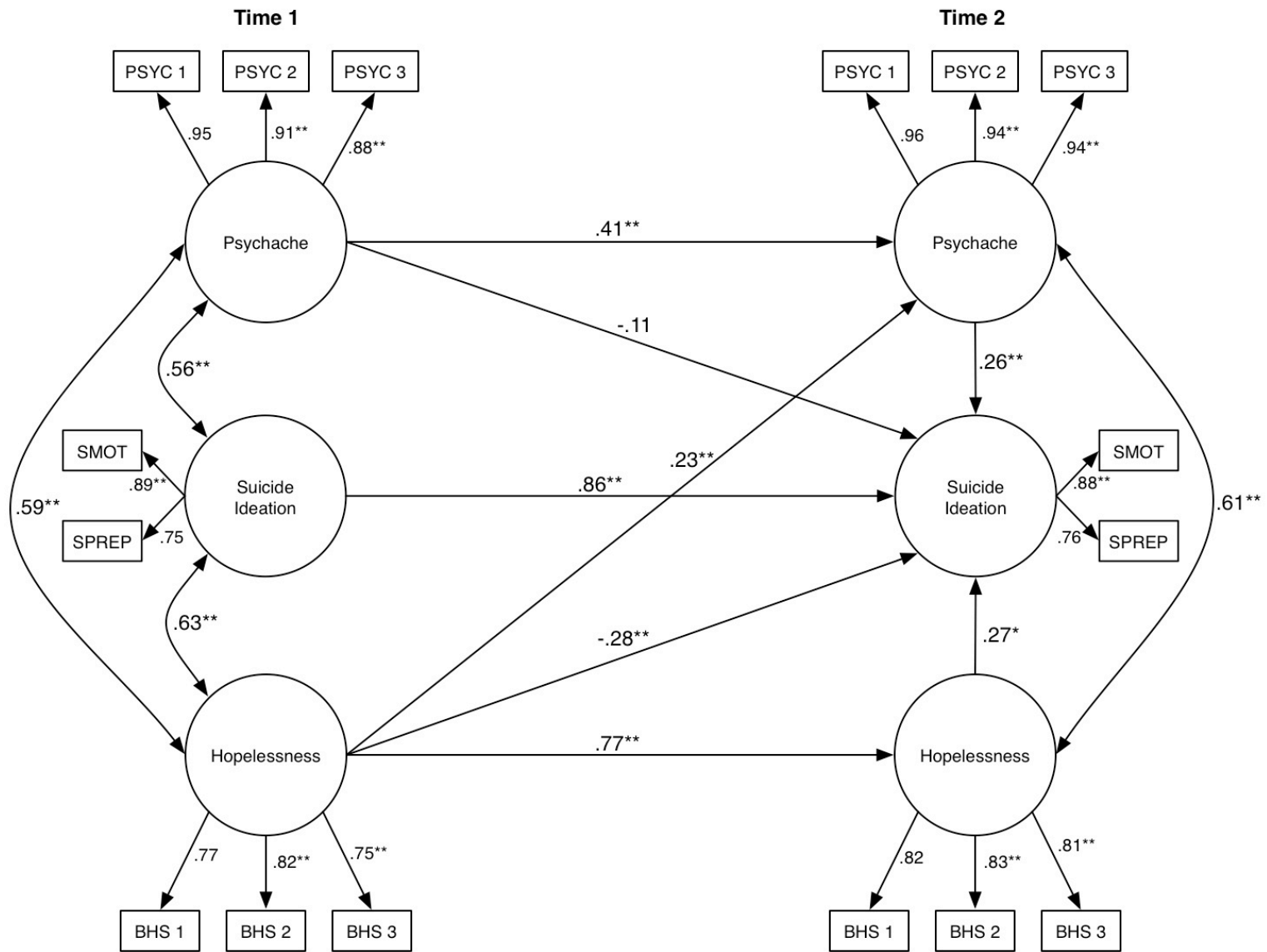












CHAPTER 3

COMPARING PSYCHACHE AND HOPELESSNESS AS NECESSARY AND SUFFICIENT CONDITIONS FOR SUICIDALITY: A TEST OF SHNEIDMAN'S THEORY

Flamenbaum, R., & Holden, R. R. (2009). *Comparing psychache and hopelessness as necessary and sufficient conditions for suicidality: A test of Shneidman's theory*. Manuscript in preparation.

Abstract

The aim of the present study was to evaluate hypotheses that psychache (i.e., unbearable psychological pain; Shneidman, 1993) is a necessary and sufficient psychological condition for suicide by comparing psychache and hopelessness using an extreme groups approach. Four groups of university students with combinations of high and low levels of psychache and hopelessness were compared on measures of suicide ideation and motivations. In general, group differences in suicidality were associated with differences in psychache level but not hopelessness. The pattern of group differences indicated that psychache is necessary for suicide, although results were ambiguous on whether it is sufficient.

Comparing Psychache and Hopelessness as Necessary and Sufficient Conditions for Suicidality: A Test of Shneidman's Theory

Each year, suicide claims the lives of approximately 3,700 Canadians (Statistics Canada, 2009), or almost one million individuals worldwide (World Health Organization, 2000). It is one of the leading preventable causes of death in many countries, and among North American adolescents, suicide is second only to motor vehicle accidents as the leading cause of death (Langlois & Morrison, 2002). In addition to the loss of life, the mental health repercussions of a suicide to surviving friends and family is often severe and long-lasting (McMenamy et al., 2008; Pompili, Lester, De Pisa, et al., 2008). The magnitude of the problem is accentuated by the fact that most estimates of suicide rates are likely underestimates, because suicide deaths are often misclassified as accidental or undetermined (Langlois & Morrison, 2002; Speechley & Stavrak, 1991). Suicide is most often associated with major depression (Clark & Fawcett, 1992; Hawton & van Heeringen, 2009; Rihmer, 2007). However, large-scale public suicide education and prevention programs centering largely on depression have shown limited success in reducing suicidal acts (Mann et al., 2005). Similarly, psychopharmacological treatments for depression and other psychiatric disorders have generally not shown efficacy for preventing suicide deaths or attempts (Mann et al., 2005). There is a need, therefore, for more focused interventions and prevention programs (Robinson, 2008), and identifying individuals at risk and understanding their motivation for suicide are key steps in the development of effective strategies.

Shneidman (1993) proposed that suicide is caused by unbearable psychological pain; and coined the term *psychache* to refer to the painful inner experience of negative

emotions (e.g., anguish, despair, fear, shame, dread), or alternatively, the pain of being perturbed (Shneidman, 1999a). Suicide is an attempt to escape from psychache when this mental pain becomes unbearable or exceeds one's threshold for tolerance, and cognitive constriction leads to the idea that death is the only means of escape (Shneidman, 1993). Psychache is postulated to be the most ubiquitous, proximal and direct psychological cause of suicide, and according to Shneidman (1993), all other suicidogenic psychological factors and affective states are relevant to suicide only insofar as they lead to psychache. For example, depression doesn't cause suicide, but it can ultimately lead to suicide if it (or other factors associated with it) causes sufficiently high levels of psychological pain. Thus, psychache provides an explanatory path for suicide that is independent of psychopathology.

Shneidman's (1993) claim that all suicides result from psychache (i.e., "no psychache, no suicide") indicates that psychache is seen as a *necessary* condition for suicide. A necessary condition is one that must be present for the occurrence of an event — without psychache there is no suicide. Alternatively, a *sufficient* condition guarantees the occurrence of an event — if there is psychache then suicide will occur. Shneidman (2005) asserted that psychache is necessary, but not sufficient, for suicide:

"In the real world, there is a great deal of psychological pain without suicide — perhaps millions to one — but there is almost no suicide without a great deal of psychological pain" (p. 9)

Indeed, Shneidman (1993) acknowledged the role of other factors, such as cognitive constriction and the idea of death as an escape, as also necessary in the progression to suicide. However, inasmuch as psychache is theorized to mediate the

suicidogenic effect of all other psychological variables and affective states (Shneidman, 1993), it may also therefore be considered a sufficient *psychological* cause. That is, if all other psychological variables exert their effect through psychache, then there is no independent role for these variables in predicting suicide (i.e., “if it does not hurt, it does not matter”). Shneidman (1993, 2005) viewed hopelessness as one potential source of psychache; however, extant research has shown that both constructs are statistically significant, independent predictors of suicidality. The aim of the present study, therefore, is to evaluate psychache and hopelessness in terms of their independent associations with suicidality.

Of various psychological influences, previous research has most closely and consistently linked suicide with hopelessness (Ellis & Rutherford, 2008; Joiner, Brown, et al., 2005), defined as a generalized negative expectation about the future and one’s perceived inability to improve one’s situation (Abramson et al., 1989). Hopelessness is significantly associated with suicide ideation, history of suicide attempts, and self-reported likelihood to commit suicide (Cox et al., 2004; Johns & Holden, 1997; Steer et al., 1993), and has been shown in longitudinal studies to prospectively predict suicide ideation (Kuo et al., 2004; O’Connor, Fraser, Whyte, Machale, & Masterton, 2008), attempts (Kuo et al., 2004), and completions (Beck et al., 1990; Beck et al., 1989; Beck et al., 1985). Hopelessness is a better predictor of various suicide criteria than depression, and mediates the association between depression and suicidality (Dieserud et al., 2001; Dyer & Kreitman, 1984; Minkoff et al., 1973; Wetzel et al., 1980). It also mediates the effect on suicidality of negative life events (Konick & Gutierrez, 2005), and other

cognitive vulnerabilities (Abramson et al., 1998; Dixon et al., 1994), and is a significant predictor of suicide in schizophrenia (Kim et al., 2003; Reid, 1998).

Abramson and colleagues (Abramson et al., 2000; Abramson et al., 1989) conceptualized hopelessness as a proximal and sufficient cause of suicide. According to their model, suicide is a core symptom of a subtype of depression, termed *hopelessness depression*, which is also marked by sad affect, apathy, lack of energy, sleep disturbance, difficulty with concentration, and psychomotor retardation (Abramson et al., 1989). This subset of depressive symptomatology accounts for the fact that not all depressed individuals are suicidal, and suggests that hopelessness, as the direct cause of this syndrome, is a more specific predictor of suicide than depression. Research on the existence of hopelessness depression as a distinct syndrome has been mixed (Haslam & Beck, 1994; Joiner et al., 2001). Nonetheless, hopelessness remains an impressive psychological predictor of suicidality.

Whereas the hopelessness theory of suicide emphasizes a cognitive orientation to the understanding of suicidal behaviour (Abramson et al., 2000; Abramson et al., 1989), Shneidman (1993) proposed a more phenomenological approach that views suicide as a direct consequence of psychological pain. Psychache has been shown to be as important as hopelessness, and to contribute unique variance, independent of hopelessness, to the prediction of various suicide criteria. Several studies have found significant associations between psychache and suicide ideation or history of suicide attempts in both clinical and non-clinical samples (DeLisle & Holden, 2009; Flamenbaum & Holden, 2007; Holden et al., 2001; Lester, 2000; Mills et al., 2005; Orbach, Mikulincer, Gilboa-Schechtman, et al., 2003; Pompili, Lester, Leenaars, et al., 2008). In addition, psychache, either measured

directly or indirectly (e.g., psychological quality of life, internal perturbations-based reasons for attempting suicide), remains a significant predictor of suicide criteria when controlling for hopelessness and depression (DeLisle & Holden, 2009; Holden et al., 1998; Holden et al., 2001; Johns & Holden, 1997), indicating that it is not redundant with other prominent psychological predictors of suicide. Further establishing the validity of psychache as a construct distinct from depression and hopelessness, exploratory and confirmatory factor analyses utilizing item parcels showed that these constitute three discrete but correlated dimensions (DeLisle & Holden, 2009). Furthermore, in that study (DeLisle & Holden, 2009), the dimension representing psychache was more strongly and consistently associated with a wider range of suicide criteria than dimensions representing either depression or hopelessness. Thus, one's level of psychache is not the same as the extent to which one is hopeless or depressed, but represents the inner pain associated with these conditions, and adds valuable information to the prediction of suicide.

Research also suggests that psychache is associated with more lethal and acute presentations of suicidality than hopelessness or depression. When a distinction is made between passive forms of suicide ideation (e.g., suicidal desire) and more active or serious manifestations (e.g., formulating a plan, history of attempts), studies with psychiatric inpatients (Mendonca & Holden, 1996), prison inmates (Holden & Kroner, 2003), and college students (Johns & Holden, 1997) have found that hopelessness and depression are associated with the former, but not the latter, form of suicidality. In contrast, internal perturbations and cognitive constriction, as hypothesized by Shneidman (1993), are associated with the more active dimension of suicidality. In addition, among

psychiatric patients with major affective disorder, severe psychic anxiety predicted suicide within one year of assessment, whereas hopelessness at the time of assessment predicted suicide after one year (Fawcett et al., 1990). These findings support Shneidman's (1993) theory that psychache is the most proximal psychological cause of suicide.

Previous research (DeLisle & Holden, 2009) suggests it is possible to be hopeless without having psychache, and to have psychache without being hopeless. Thus, this study seeks to compare individuals with varying combinations of these constructs using an extreme groups approach (Preacher, Rucker, MacCallum, & Nicewander, 2005), in order to evaluate the psychological conditions with which individuals exhibit suicidal manifestations. The low base rate of suicides makes an investigation of such events difficult and impractical. As a consequence, the present study focuses on suicide ideation, suicide history, and self-harming behaviours as criterion measures of suicidality. This strategy is supported by findings that large proportions of ideators and self-injurers attempt suicide (Kessler et al., 2005; Klonsky & Muehlenkamp, 2007; Nock et al., 2008), and a history of previous attempts is a robust predictor of future attempts and completions (Clark & Fawcett, 1992; Hawton & van Heeringen, 2009; Suominen et al., 2004). In addition, in order to better understand the motivation for suicide associated with experiences of hopelessness and suicide, ancillary measures of depression, reasons for living, and reasons for attempting suicide are also used in this study. Consistent with previous research (Holden & Kroner, 2003; Johns & Holden, 1997) and Shneidman's (1993) theory, it was expected that high levels of psychache would be associated with greater levels and a wider variety of indicators of suicidality than high hopelessness

alone. Furthermore, as a test of the hypothesis that psychache is necessary and sufficient for suicide, it was expected that the suicidality associated with psychache would not be augmented by the addition of hopelessness.

Method

Participants and Procedure

A total of 1,333 undergraduate university students enrolled in a first-year psychology class at Queen's University, Kingston, Ontario, Canada completed measures of hopelessness and psychache as part of a larger prescreening questionnaire administered at the beginning of the school year. Based on the distribution of psychache and hopelessness scores of the entire sample, cutoff scores were established as a basis to select participants to make up four groups: (1) a low hopelessness/low psychache group (Low H/Low P), (2) a high hopelessness/low psychache group (High H/Low P), (3) a low hopelessness/high psychache group (Low H/High P), and (4) a high hopelessness/high psychache group (High H/High P). With the aim of recruiting a minimum of 25-30 participants for each group, students who met the cutoff criteria were invited to participate in the study and asked to complete a questionnaire package that included measures of hopelessness, psychache, depression, suicide ideation and behaviours, reasons for attempting suicide, and reasons for living. They were also asked to report on their suicide history, including number of attempts, and recency, method, and intent of their most recent attempt. A total of 184 participants (74% female), ranging in age from 17 to 30 years ($M = 18.59$, $SD = 1.70$), completed these measures. Information on race or ethnicity was not collected. Group composition was as follows: Low H/Low P $n = 74$, High H/Low P $n = 30$, Low H/High P $n = 28$, and High H/High P $n = 52$. All participants

were given course credit for their participation and treated in accordance with the ethical guidelines established by the Queen's University Research Ethics Board.

Materials

The Psychache Scale. The Psychache Scale (Holden et al., 2001) is a 13-item measure of psychological pain. Items are coded on 5-point Likert scales. The Psychache Scale has high reliability and validity in samples of students and offenders. Alpha reliability coefficients over .90 and medium to large correlations with suicide criteria have been reported in these samples (Holden et al., 2001; Mills et al., 2005). Additionally, the Psychache Scale can successfully differentiate between suicide attempters and non-attempters (Holden et al., 2001). Internal consistency in the present sample was .95.

Beck Hopelessness Scale (BHS). The BHS (Beck et al., 1974) is a measure of the degree to which a person holds negative expectations about the future, consisting of 20 true-false statements. It has good reliability and validity in clinical and nonclinical samples (Durham, 1982; Holden et al., 1998), and has been shown to predict eventual suicide (Beck et al., 1990; Beck et al., 1985). Alpha reliability coefficient for the present sample was .88.

Beck Scale for Suicide Ideation (BSS). The BSS (Beck & Steer, 1993) is a self-report, 19-item, 3-point measure of suicidal ideation and intent. The BSS has demonstrated strong psychometric properties in various samples. Factor analysis has yielded two subscales (Beck et al., 1997): Suicidal Motivation refers to individuals' ambivalence about living or dying, as well the frequency and duration of suicidal thoughts; and Suicidal Preparation refers to an active component of planning the suicidal

act. Holden and DeLisle (2005) report results of exploratory and confirmatory principal components analyses supporting the two-factor model, and provide alpha coefficients of .85 and .73 for motivation and preparation components, respectively. In the present sample, alpha coefficients for motivation and preparation subscales were .78 and .77, respectively.

Suicidal Behaviors Questionnaire (SBQ-14). The SBQ-14 (Linehan, 1996) is a self-report measure of the frequency and severity of past suicide ideation and self-harming behaviours, expectations about the likelihood of considering or attempting suicide, and expectations about the consequences of suicide (Linehan, 1996). There are no published psychometric data for the SBQ-14, but abbreviated versions have shown good reliability and validity in clinical and nonclinical samples (Cole, 1988; Cotton, Peters, & Range, 1995; Osman et al., 2001). In the present study, scores were computed for past suicide ideation, past suicide threats, future likelihood of suicide ideation, and future likelihood of suicide attempts. For these items, scores were weighted such that greater scores indicated greater frequency as well as greater immediacy of these occurrences. Alpha reliability coefficients for these scales were .87, .87, .89, and .85, respectively. Participants also indicated the number of times that they have engaged in various self-harming actions (e.g., cutting, burning, overdose).

Beck Depression Inventory (BDI). The BDI (Beck & Steer, 1987) is a widely used 21-item instrument measuring the cognitive, behavioural, motivational, and vegetative symptoms of depression. Participants are asked to rate the severity with which they have experienced specific depressive symptoms of depression in the past week, using a 4-point scale. Internal consistency ranges from .81 for nonpsychiatric subjects to .86 for

psychiatric patients, and concurrent validity with other measures of depression is high (Beck, Steer, & Carbin, 1988). Internal consistency in the present sample was .91.

Reasons for Attempting Suicide Questionnaire (RASQ). The RASQ (Holden et al., 1998; Johns & Holden, 1997) is a 14-item measure of the motivation for suicide, originally derived from motives given by overdose patients for having poisoned themselves. Responses are coded on a 5-point Likert scale. The RASQ consists of two subscales: a 6-item scale reflecting Internal Perturbations-Based Reasons (e.g., “To get relief from a terrible state of mind”), and an 8-item scale reflecting Extrapunitive/Manipulative Motivations (e.g., “Make people sorry for the way they treated me”). This two-factor model has been confirmed by Holden and DeLisle (2006). Of the two, only the Internal Perturbation-Based Reasons scale correlates significantly with suicide criteria (Holden, Kerr, Mendonca, & Velamoor, 1998), and is a significant predictor of attempter status (Holden & McLeod, 2000). Alpha coefficients range from .71 to .85 for the Internal Perturbation-Based Reasons scale, and .80 to .86 for the Extrapunitive/Manipulative Motivations scale (Holden & DeLisle, 2006; Holden et al., 1998; Holden & McLeod, 2000). In the present study, alpha coefficients were .86 and .85 for the respective scales.

Reasons for Living Inventory (RFL). The RFL (Linehan, Goodstein, Nielsen, & Chiles, 1983) is a 48-item self-report measure designed to assess potential reasons for not committing suicide. Respondents are asked to rate the current importance of each item as a reason for not killing themselves. Items are scored on a 6-point Likert scale ranging from 1 ("not at all important") to 6 ("extremely important"). Factor analytic results in a sample of adults support the existence of six domains of reasons for living (Linehan et

al., 1983): (a) survival and coping beliefs, (b) responsibility to family, (c) child related concerns, (d) fear of suicide, (e) fear of social disapproval, and (f) moral objections. The RFL yields a total score as well as six subscale scores corresponding to each domain. The scales have moderately high internal reliability, with alpha coefficients ranging from .72 to .89 in a nonclinical adult sample (Linehan et al., 1983), and .77 to .95 in a sample of psychiatric inpatients (Osman et al., 1999). The RFL differentiates between suicidal and nonsuicidal individuals in both clinical and nonclinical adult samples (Linehan et al., 1983; Osman et al., 1999), and scales have medium to large negative correlations with measures of suicide ideation and intent (Linehan et al., 1983). In the present study, only the total RFL score was used, with an alpha reliability coefficient of .92.

Results

Scale scores for participants with missing data were prorated, provided there was no more than 10% missing data for a particular scale. Differences among the groups were examined using one-way multivariate analyses of variance (MANOVA) followed by univariate analyses (ANOVAs) and post-hoc Tukey HSD comparisons. As is to be expected with measures of suicidality in nonclinical samples, the distribution of several of the variables in this study were severely positively skewed. MANOVA has been shown to be robust to violations of normality, particularly when this is due to skewness (Finch, 2005; Tabachnick & Fidell, 1989). However, MANOVA is not robust to heterogeneity of variances when cell sizes are unequal. In particular, when larger variances are associated with smaller cells, the significance test will be too liberal (Tabachnick & Fidell, 1989). Consequently, Pillai's criterion was used to test multivariate significance, because it is relatively more robust than other alternatives when

homoscedasticity is violated (Olson, 1976). In addition, for univariate comparisons where Levene's test indicated heterogeneity of variance, Games-Howell post-hoc tests were used to determine group differences because this procedure has been shown to maintain nominal alpha levels in situations with unequal variances and cell sizes (Jaccard, Becker, & Wood, 1984).

Group Selection

The distributions of psychache and hopelessness scores for the initial sample of 1,333 students were examined in order to generate cutoff scores with which to construct groups with combinations of high and low levels of hopelessness and psychache. The means, standard deviations, and distributions of hopelessness and psychache scores for this initial prescreening sample are displayed in Table 3.1. Means and standard deviations were consistent with values found in previous studies of students (DeLisle & Holden, 2009; Holden et al., 2001). In addition, the distribution of BHS scores was generally consistent with that reported by Durham (1982), except for values at the 90th and 95th percentiles, which were higher in the present study. Cutoff scores for psychache and hopelessness were set at the 25th and 75th percentiles, and were based on a need to maximize differences between low and high scorers, while also ensuring sufficient numbers of participants in each group.

Because group membership was determined from a prescreening assessment conducted some time before the study, this classification may not have been maintained for all participants at the time they completed the full questionnaire package. In order to verify whether groups did, in fact, represent the expected levels of hopelessness and psychache at the time of the study, participants again completed the BHS and the

Psychache Scale in the full study questionnaire package. Group comparisons with respect to these measures are displayed in Table 3.2. The omnibus test was significant, Pillai's Trace = .973, $F(6, 358) = 56.47, p < .001$, as were the univariate ANOVAs for psychache, $F(3, 179) = 65.36, p < .001$, and hopelessness, $F(3, 179) = 98.17, p < .001$. Post-hoc comparisons revealed that the two high psychache groups had significantly higher levels of psychache than the two low psychache groups. Similarly, the two high hopelessness groups reported greater hopelessness than the two low hopelessness groups; however, hopelessness was also significantly higher in the high hopelessness/high psychache group than in the high hopelessness/low psychache group. The four groups did not differ with respect to age, $F(3, 180) = .82, p = .48$, or gender composition (Fisher's exact test, $p = .30$).

Comparison of Suicidality Measures

Of the entire sample, 13 participants (7.1%) reported having a history of at least one suicide attempt. As a group, attempters were 69.2% female and ranged in age from 18 to 20 years ($M = 18.62, SD = 0.77$). Self-reported lifetime number of attempts ranged from 1 to 4 ($M = 1.73, SD = 0.97$), the mean level of intent associated with the most recent attempt was 3.08 ($SD = 1.26$, range: 1-5), and the mean time since the most recent attempt was 37.23 months ($SD = 27.12$, range: 0.75-84). Fisher's exact test ($p < .01$) showed that groups significantly differed with respect to their proportion of attempters, which was as follows: Low H/Low P 0 attempters, High H/Low P 2 attempters (6.7%), Low H/High P 4 attempters (14.3%), and High H/High P 7 attempters (13.5%). The overall small number of attempters, however, precluded any further analyses of group differences in attempter characteristics.

A one-way MANOVA showed a significant overall effect of group membership on measures of suicidality, Pillai's Trace = .273, $F(21, 516) = 2.46$, $p < .001$; and follow-up univariate analyses indicated that groups significantly differed on the Motivation and Preparation subscales of the BSS, as well as SBQ indices of past ideation, self-perceived likelihood of future ideation, self-perceived likelihood of future attempts, and number of self-harming acts, but not on past communications of suicidal intent. The univariate tests of significance and post-hoc comparisons are summarized in Table 3.3.

Examination of group means in Table 3.3 shows that, with regard to the Suicidal Motivation subscale of the BSS, scores did not vary significantly by level of hopelessness, but did vary by level of psychache. That is, within each of low and high levels of psychache, the low and high hopelessness groups did not significantly differ from one another; whereas at equal levels of hopelessness, the high psychache groups had significantly higher scores than the low psychache groups. However, these results are somewhat confounded by the fact that the two high hopelessness groups also significantly differed in terms of their hopelessness scores, and not just psychache. As a result, it cannot be readily ascertained whether the significantly higher suicidal motivation scores in the high hopelessness/high psychache group is attributable to the high levels of psychache, or the increased levels of hopelessness over the high hopelessness/low psychache group. In order to examine which of hopelessness or psychache can better account for the difference in suicidal motivation between these two groups, motivation scores for participants in both the high hopelessness/low psychache and high hopelessness/high psychache groups ($n = 82$) were regressed onto their hopelessness and psychache scale scores. Suicidal motivation was significantly predicted by psychache, β

= .45, $p < .001$, but not by hopelessness, $\beta = .23$, $p = .06$, suggesting that the difference in suicidal motivation between the two groups was due primarily to the difference in level of psychache.

A somewhat similar pattern was evident for the Suicidal Preparation subscale of the BSS. For this scale, scores did not differ as a function of hopelessness at equal levels of psychache. However, scores were significantly higher for high vs. low psychache, but only at low levels of hopelessness. At high levels of hopelessness, the difference between the low psychache group and the high psychache group did not reach statistical significance ($p = .08$) when using the Games-Howell test. Overall, these results indicate that differences among the groups in terms of both suicidal motivation and preparation can be attributed to changes in levels of psychache.

There was less discrimination among the groups with regard to the SBQ indices. Scores on measures of past ideation, likelihood of future ideation, and likelihood of future attempts did not vary exclusively by either hopelessness or psychache, as the only significant differences with respect to these variables were between the low hopelessness/low psychache group and the high hopelessness/high psychache group. For number of self-harming acts, although the univariate test showed an overall significant group difference, the Games-Howell comparisons, which adjust for unequal variances, did not reveal any pairwise differences. In order to assess the relative contributions of psychache and hopelessness to SBQ scores within the high hopelessness/high psychache group ($n = 52$), a series of regressions were conducted post-hoc. Past ideation scores were predicted by psychache, $\beta = .32$, $p < .05$, but not by hopelessness, $\beta = .24$, $p = .12$; whereas self-perceived likelihood to consider suicide in the future was predicted by

hopelessness, $\beta = .34, p < .05$, but not by psychache $\beta = .07, p = .67$. Neither psychache, $\beta = .237, p = .141$, or hopelessness, $\beta = .240, p = .137$, were statistically significant, unique predictors of self-perceived likelihood of future attempts, although the overall model was significant, $F(2, 48) = 5.21, p < .01$.

Comparison of Motivation Measures

Variables relating to individuals' motivations for suicide were analyzed in a separate MANOVA, which showed a significant overall group difference on the set of dependent variables, Pillai's Trace = .486, $F(12, 537) = 8.65, p < .001$. Follow-up univariate tests found significant group differences in depression, internal perturbations-based reasons and extrapunitive/manipulative motivations for suicide, and reasons for living scores. Post-hoc comparisons (Table 3.4) revealed the following pattern of results. At either level of hopelessness, depression scores were significantly higher for the high psychache vs. the low psychache group. Depression scores also varied significantly by level of hopelessness, but only at high levels of psychache.

Regarding the reasons individuals endorsed for attempting suicide, internal-perturbations based reasons were significantly higher for high psychache groups than for low psychache groups, and did not significantly differ by level of hopelessness. Furthermore, the difference between the high hopelessness/low psychache and high hopelessness/high psychache groups was, in fact, attributable to the change in psychache scores, as indicated by the regression of internal perturbation scores on both psychache, $\beta = .50, p < .001$, and hopelessness, $\beta = .16, p = .19$, on the combined group of individuals in the two high hopelessness groups ($n = 82$). In terms of extrapunitive/manipulative motivations for suicide, scores differed significantly by psychache, but only at low levels

of hopelessness, and did not differ by hopelessness at either level of psychache. Similarly, a comparison of groups on their reasons for living scores showed that, at low levels of hopelessness, the high psychache group endorsed significantly fewer reasons for living than the low psychache group. However, this difference in reasons for living as a function of psychache was not statistically significant at high levels of hopelessness, and there were no differences in reasons for living as a function of hopelessness. Thus, the degree to which individuals agree with various reasons for and against suicide can be largely attributed to variations in levels of psychache, although interactions with hopelessness are also evident.

Discussion

Mental health efforts to assess and treat suicidal individuals hinge on an understanding of the motivation that drives suicidality. Two psychological variables - hopelessness and psychache - have been identified as key causal factors in suicide (Abramson et al., 2000; Shneidman, 1993). Abramson et al. (2000) proposed that hopelessness, defined as a generalized negative expectation about the future, is a proximal and sufficient cause of suicide. Several cross-sectional and longitudinal studies have found robust associations between hopelessness and several aspects of suicidality (Beck et al., 1989; Dyer & Kreitman, 1984; Steer et al., 1993), and a cutoff score on the BHS has been associated with an 11 times greater risk of suicide (Beck et al., 1990). Alternatively, Shneidman (1993) proposed that psychological pain, or psychache, is the most direct and most common psychological motivator for suicide. As such, psychache is hypothesized to be a stronger predictor of suicidality than other psychological variables,

and the present study sought to compare the contributions of psychache and hopelessness to the prediction of various suicide criteria using an extreme groups approach.

Four groups composed of combinations of high and low levels of psychache and hopelessness were compared with respect to measures of suicide ideation and attempts, reasons for living or attempting suicide, and depression, and it was expected that differences in suicidality would be associated with variations in psychache rather than hopelessness. As hypothesized, and consistent with Shneidman's (1993) theory, differences between groups were associated primarily with differences in levels of psychache. That is, comparisons of groups that were high vs. low in psychache yielded the greatest differences on a wider range of variables than comparisons of high and low hopelessness groups.

More specifically, current suicide ideation, as measured by BSS subscales of Motivation and Preparation, and reasons for attempting suicide based on internal perturbations varied exclusively by level of psychache, and did not vary by level of hopelessness. The strong association between internal perturbations-based reasons and psychache is not surprising given theoretical (Shneidman, 1999a) and empirical (Flamenbaum & Holden, 2007) links between these two constructs. Psychache is conceptualized as the mental pain of being perturbed (Shneidman, 1999a), and has been used synonymously with internal perturbations in the research (Holden & Kroner, 2003; Holden et al., 2001). This finding, then, serves to further validate the association between psychache and internal perturbations as something that is exclusive to the experience of psychache. Groups characterized by high levels of psychache also showed significantly higher suicide ideation scores than low psychache groups, irrespective of hopelessness

level. Thus, individuals who are experiencing psychache may be distinguished by their current suicidality; however, individuals who are hopeless do not necessarily share this attribute.

Results were more nuanced with respect to depression, extrapunitive/manipulative motivations for suicide, and reasons for living, as the pattern of group differences showed evidence of interaction effects between hopelessness and psychache. For example, depression scores were significantly higher for high psychache groups regardless of hopelessness level, and were also significantly associated with higher hopelessness, but only at high psychache. Thus, hopelessness does not appear to be significantly associated with depression at low levels of psychache, but at high psychache, hopelessness contributes to the prediction of depression. This pattern suggests that individuals who are depressed are marked by psychological pain, but they may not always be hopeless, and is consistent with results of canonical correlation analyses reported by (DeLisle & Holden, 2009), who found that psychache accounted for a greater proportion of variance in depression scores than hopelessness did (51% vs. 25%).

For both extrapunitive/manipulative motivations for suicide and reasons for living, groups differed in the expected direction as a function of psychache, but only at low levels of hopelessness. Groups did not differ on these measures as a function of hopelessness. This interaction may reflect the idea that individuals who are experiencing psychological pain but are not hopeless focus more on external reasons for their pain than individuals who are hopeless. Hopelessness involves an internalization of negative life events as individuals make stable and global attributions about the self (Abramson et al., 1989, 2000). Individuals without this attributional style do not become hopeless, and may

therefore preserve a greater focus on other individuals or life circumstances in their reasoning for suicide. Of course, this interpretation is purely speculative and requires replication; but these findings bring to light potential differences in the motivations for suicide associated with varying degrees of hopelessness and psychache.

Relative to other measures, the SBQ indices of frequency of past ideation and likelihood of future ideation and attempts showed less fine-grained differentiation among the groups, as only the group with high levels of both psychache and hopelessness reported significantly higher scores. One potential explanation for this lies in the nature of what is being measured by these scores. Whereas the other measures employed in this study assess the content and continua of thoughts or behaviours, the SBQ measures assess more discrete occurrences, by asking individuals to recall how often they have thought about killing themselves at different time periods in their lives (e.g., in the last year, within the last month), or to assess how likely it is that they will attempt suicide at a specified point in the future (e.g., within the next year, within the next month). It is possible that asking about these more specific and concrete events yielded less variability between groups, and only the more distressed group with both high hopelessness and high psychache reported scores that were high enough to comprise a statistically significant difference relative to the group with low hopelessness and psychache.

Further examining the associations between psychache, hopelessness, and SBQ variables within this highly distressed group revealed that past ideation was significantly predicted by psychache scores, whereas future ideation was predicted by hopelessness, and neither variable uniquely predicted individuals' perceived likelihood of future attempts. The stronger association between hopelessness and future ideation is not

surprising, given the orientation toward the future invoked by both of these constructs (see Beck et al., 1974). Alternatively, the stronger association between past ideation and psychache may reflect greater chronicity of suicidality among individuals who report high levels of psychache. It may also, however, reflect an increased memory bias for past suicidality associated with increased psychache. Research shows that the ability to recall past suicidality is affected by current mood states, and individuals who are more accurate in recalling previous suicidal thoughts and behaviours tend to show poorer functioning than those who forget such events (Klimes-Dougan, Safer, Ronsaville, Tinsley, & Harris, 2007).

The comparison of extreme groups also allows for an examination of the hypothesis that psychache is necessary and sufficient for suicide. Shneidman's (1993) claim that all suicides involve psychache posits that psychache is a necessary condition for suicide. In addition, the claim that psychache should fully mediate the influence of other psychological variables (1993) suggests that, within the realm of psychological factors, psychache is also seen as a sufficient cause of suicide. Comparing psychache with hopelessness, which is regarded as the preeminent psychological predictor of suicide (Ellis & Rutherford, 2008; Joiner, Brown, et al., 2005), provides a more robust test of these conditions. To determine whether psychache is necessary for suicide, we can compare the independent contributions of psychache and hopelessness to various suicide criteria. Using the low hopelessness/low psychache group as a baseline, pairwise comparisons with the group that was high only on hopelessness yielded no significant differences. In contrast, the group that was high on only psychache was significantly, and excepting SBQ indices, consistently higher on the dependent measures than the

comparison group. These findings suggest that, at least relative to hopelessness, the presence of psychache is a necessary condition for suicide.

Furthermore, comparing the group that is high on only psychache and the group that is high on both hopelessness and psychache can be used as a test of whether psychache is sufficient for suicide. If psychache is sufficient, then the addition of hopelessness would not be associated with increased suicidality above levels associated with psychache alone. That is, the group that is high in hopelessness and psychache would not be expected to be significantly different from the group that is high only on psychache. Indeed, this hypothesis was supported by the data, and again excepting SBQ measures, psychache was shown to be a sufficient condition for suicidality. However, the pattern of group differences on the SBQ measures cannot be entirely overlooked. The fact that only the group with both high hopelessness and high psychache showed significant increases in frequency and immediacy of suicide ideations suggests that psychache alone is not sufficient for these indicators of suicidality. Overall, then, results strongly support the hypothesis that psychache is necessary for suicidality, and provide mixed evidence that it is also a sufficient psychological condition for suicide.

The results of the present study provide strong support for Shneidman's (1993) theory, particularly with respect to the assertion that there is no suicide without psychache. Indeed, results suggest that psychache is a more important predictor of suicide than hopelessness. This is consistent with results from previous studies using correlational analyses, which found that psychache was a stronger predictor of suicide ideation than hopelessness (DeLisle & Holden, 2009; Holden et al., 1998; Holden et al., 2001). More equivocal, however, is the claim that other psychological factors have no

independent influence beyond their effect on psychache. Previously, Flamenbaum and Holden (2007) tested a mediational model involving perfectionism, and found that psychache fully accounted for the relationship between socially prescribed perfectionism and suicidality. In the present study, hopelessness had no independent contribution to the prediction of suicide ideation or different motivations for suicide. Hopelessness did, however, contribute to the prediction of frequency and immediacy of suicidal ideations, suggesting that, for certain aspects of suicidality, different psychological variables may also have influences that are not entirely mediated by psychache. Taken together with regression-based studies showing that both psychache and hopelessness are significant statistical predictors of suicide criteria (DeLisle & Holden, 2009; Holden et al., 1998), these results suggest that Shneidman (1993) may have overstated when he claimed that all affective states are relevant to suicide only as they relate to psychache. Nonetheless, growing evidence supports the idea that it is the key psychological factor in suicide.

It is important to acknowledge the limitations of the current study. First, study participants were university students and predominantly female, and so results may not generalize to other populations. The small number of males in the study precluded an examination of gender differences, and so it is not known to what extent gender may moderate the present findings. Furthermore, as this study employed a nonclinical sample, participants reported relatively low levels of suicidality, psychache, and hopelessness. It cannot be assumed, therefore, that the preeminence of psychache over hopelessness found in this study will hold at higher levels of these variables or of suicidality, such as may be found in clinical samples. However, studies on depression with student and clinical samples have often produced similar findings (Vredenburg et al., 1993); and in

both clinical and forensic samples, psychache has shown to statistically predict suicide criteria even when controlling for hopelessness (Berlim et al., 2003; Holden & Kroner, 2003; Orbach, Mikulincer, Gilboa-Schechtman, et al., 2003). It is possible, therefore, that the results of the present study may also apply to higher-risk populations, although more research with clinical samples is required to replicate these findings.

In addition, designations of high and low groups were based on the observed distribution of all students in an introductory psychology class, and do not represent actual taxons. As such, groups represent dichotomizations of continuous phenomena, and results are susceptible to limitations inherent in this approach (MacCallum, Zhang, Preacher, & Rucker, 2002; Preacher et al., 2005). In particular, the design employed in this study can be used to assess whether an effect exists and, if so, the direction of such an effect. It cannot, however, be used to determine effect sizes, as such estimates have been shown to be greatly biased when using extreme groups analyses (MacCallum et al., 2002; Preacher et al., 2005). In addition, because group assignment was established prior to data collection, participants may not have retained their group status at the time of the study. Although group comparisons on subsequent measurements of psychache and hopelessness confirmed that the prescreening procedure was generally successful in creating high and low groups, the potential misclassification of individuals represents an additional source of error that may have reduced the power of statistical tests (Preacher et al., 2005).

Finally, this study examined suicidality as a range of suicidal manifestations including suicide ideation and history of previous attempts. As a result, it is not known how results may apply to subsequent attempts or actual completions. Ultimately, only

examinations of actual suicide outcomes can more definitively speak to the contributions of psychache and hopelessness to suicide. Nonetheless, given the distress and increased risk of suicide attempts associated with suicide ideation (Brezo et al., 2007; Kessler et al., 1999; Nock et al., 2008), ideation is itself an important target of study. The focus on suicide ideation is particularly important when one considers the benefits of early intervention, as well as the need to develop sound suicide prevention strategies (Robinson, 2008).

Although this study supports the argument that psychache is a necessary requisite for suicide, it is important to recognize that the vast majority of individuals with even extreme psychache do not commit suicide (Shneidman, 2001, 2005). Suicide is a complex, multi-determined phenomenon with a host of neurobiological, sociological, environmental, and philosophical influences that can potentially moderate the relationship between psychache and suicide. Future research will need to integrate psychache within a larger framework and examine how other factors such as impulsivity (Joiner, Brown, & Wingate, 2005), social support (Van Orden et al., 2008), coping styles (Edwards & Holden, 2001; Wang, Lightsey, Pietruszka, Uruk, & Wells, 2007), and life stresses (Konick & Gutierrez, 2005; Shneidman, 1993) combine with psychache to lead an individual to become suicidal.

Results from the current study and others (DeLisle & Holden, 2009; Holden et al., 2001) show that psychache has unique value as a construct distinct from hopelessness to the prediction of suicidality. These findings have implications for the assessment of suicide risk, where the additional information provided by psychache can improve the specificity of screening measures (Robinson, 2008). In fact, recent protocols for suicide

management (Jobes & Drozd, 2004) have incorporated an evaluation of individuals' psychological pain, and this study supports such an approach and provides encouragement for continued development in this area. A conceptualization of suicide that includes psychache also provides new opportunities for suicide intervention and treatment that are independent of psychopathology (Shneidman, 2004, 2005), and can therefore be more easily generalized across populations. Given the present results, as well as calls for improved suicide detection and prevention (Weir, 2001), the continued investigation of the role of psychache in suicide is warranted and worthwhile.

Table 3.1

Means, Standard Deviations, and Distributions of Prescreening Measures (N = 1,333)

	Possible Range	<i>M</i>	<i>SD</i>	Percentile						
				5	10	25	50	75	90	95
Psychache	13-65	20.82	8.31	13.00	13.00	15.00	18.00	24.00	33.00	38.00
Hopelessness	0-20	3.25	3.28	0.00	0.00	1.00	2.00	4.00	7.37	10.00

Table 3.2

Hopelessness and Psychache Prescreening Cutoff Scores and Study Means and Standard Deviations by Group

Group	Prescreening Cutoff Criteria (Raw Scale Scores)		Observed Data		
	Hopelessness	Psychache	<i>n</i>	<u>Hopelessness</u>	<u>Psychache</u>
				<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Low H/Low P	≤ 1	≤ 15	74	1.37 ^a (1.58)	15.69 ^x (4.31)
High H/Low P	≥ 4	≤ 15	30	4.72 ^b (2.87)	16.67 ^x (4.45)
Low H/High P	≤ 1	≥ 24	28	2.50 ^a (2.13)	28.57 ^y (10.37)
High H/High P	≥ 4	≥ 24	52	9.38 ^c (3.75)	31.68 ^y (9.04)

Note. H = Hopelessness, P = Psychache. Within a column, means that share a superscript do not significantly differ from one another. All differences are significant at $p < .01$. Cutoff criteria were based on scale scores at the time of participant prescreening ($N = 1,333$). Observed scale scores were obtained at the time of the full study assessment.

Table 3.3

Univariate Tests and Post-hoc Comparisons of Suicidality Measures

Dependent Variable	Low H/Low P (<i>n</i> = 70)	High H/Low P (<i>n</i> = 30)	Low H/High P (<i>n</i> = 28)	High H/High P (<i>n</i> = 52)	Univariate <i>F</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
BSS					
Suicidal Motivation	0.36 ^a (0.78)	0.93 ^{ab} (1.55)	1.57 ^{bc} (1.79)	2.60 ^c (2.96)	14.15 ^{***}
Suicidal Preparation	2.01 ^a (1.96)	3.05 ^{ab} (2.69)	3.82 ^b (3.17)	4.68 ^b (3.28)	10.17 ^{***}
SBQ					
Past ideation	2.41 ^a (5.87)	5.80 ^{ab} (14.05)	6.29 ^{ab} (9.11)	10.08 ^b (11.74)	5.94 ^{**}
Past threats	0.31 ^a (1.49)	0.43 ^a (1.25)	1.29 ^a (5.68)	1.29 ^a (3.63)	1.33
Future ideation	1.94 ^a (7.25)	4.43 ^{ab} (11.08)	3.86 ^{ab} (5.87)	7.04 ^b (10.63)	3.30 [*]
Future attempts	0.06 ^a (0.23)	1.40 ^{ab} (4.75)	1.36 ^{ab} (3.67)	2.10 ^b (4.79)	3.53 [*]
Self-harming acts	0.36 ^a (1.45)	0.27 ^a (1.05)	0.32 ^a (1.36)	1.92 ^a (4.64)	4.17 ^{**}

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. H = Hopelessness; P = Psychache; BSS = Beck Scale for Suicide Ideation; SBQ = Suicidal Behaviors Questionnaire. Within a row, means that share a superscript do not significantly differ from one another. Mean differences are significant at the .05 level.

Table 3.4

Univariate Tests and Post-hoc Comparisons of Motivation Measures

Dependent Variable	Low H/Low P	High H/Low P	Low H/High P	High H/High P	Univariate <i>F</i>
	(<i>n</i> = 74)	(<i>n</i> = 30)	(<i>n</i> = 28)	(<i>n</i> = 52)	
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Beck Depression Inventory	4.79 ^a (4.64)	6.99 ^{ab} (6.03)	10.86 ^b (7.09)	17.09 ^c (8.64)	37.60**
RASQ					
Internal Perturbations	9.24 ^a (3.60)	11.10 ^{ab} (4.94)	14.39 ^{bc} (5.73)	15.65 ^c (5.91)	19.94**
Extrapunitive Motivations	11.64 ^a (5.03)	12.77 ^{ab} (6.08)	15.68 ^b (6.18)	14.00 ^{ab} (6.38)	3.88*
RFL Total	215.72 ^a (26.94)	198.40 ^{ab} (37.61)	195.64 ^b (26.11)	191.74 ^b (35.31)	7.06**

Note. * $p < .05$, ** $p < .001$. H = Hopelessness; P = Psychache; RASQ = Reasons for Attempting Suicide Questionnaire; RFL = Reasons for Living Questionnaire. Within a row, means that share a superscript do not significantly differ from one another. Mean differences are significant at the .05 level.

CHAPTER 4

General Discussion

Shneidman (1993) has proposed that unbearable psychache (i.e., psychological pain) is the primary psychological cause of suicide. Two studies presented in this dissertation were devised to test key tenets of Shneidman's theory. The first study tested the hypothesis that psychache is causally related to suicidality by examining whether psychache contributes to the prediction of changes in suicide ideation in a two-wave longitudinal design. The second study assessed the claims, implicit in Shneidman's (1993) theory, that psychache is necessary and sufficient for suicide by comparing groups with high and low levels of psychache on a variety of suicide criteria. In both studies, the assessment of the importance of psychache for suicide was strengthened by its comparison with hopelessness, which has previously been shown to be a robust predictor of suicide (e.g., Beck et al., 1990; Beck et al., 1989). On the basis of these results, the following conclusions can be drawn:

1. Psychache contributes to the development of suicidality.

Previous cross-sectional research (e.g., Holden et al., 2001), has shown that psychache is significantly associated with suicidality. However, whereas this kind of research shows that suicidality and psychache covary across individuals, the longitudinal study presented in Chapter 2 showed that, within individuals, psychache and suicide ideation covary across time. The structural equation model described in Chapter 2 shows that change in psychache predicts change in suicide ideation. Thus, as individuals become more perturbed and their psychological pain more unbearable, so does the severity and frequency of their suicidal thoughts. This association is consistent with a causal

hypothesis and Shneidman's (1993) conceptualization of suicide as a means to end or escape from painful consciousness. Further, this pattern of association suggests that psychache and suicide ideation are temporally close occurrences, which is also consistent with the view that psychache is a proximal predictor of suicide (Shneidman, 1993). By demonstrating the temporal relationship between psychache and suicide ideation, the longitudinal study in Chapter 2 provides more robust support for a causal model, thereby extending past research and overcoming the limitations of previous studies.

2. Psychache is at least as important as hopelessness to the prediction of suicide risk.

Hopelessness has gained considerable support in the literature as a robust psychological predictor of suicide. This status is due in large part to studies conducted by Beck and colleagues (Beck et al., 1990; Beck et al., 1989; Beck et al., 1985), which have consistently shown that cutoff scores on a hopelessness scale significantly predict suicide completions among psychiatric inpatients and outpatients. For this reason, hopelessness was included in the present studies as a standard by which to gauge the relative importance of psychache to suicidality. As expected, in the two studies that comprise this thesis, psychache contributed significantly to the prediction of suicide criteria controlling for hopelessness. In Chapter 2, both psychache and hopelessness significantly predicted change in suicide ideation, indicating that both of these psychological factors make independent contributions to the development of suicidality. Thus, suicide ideation may be seen as a result of unbearable psychological pain together with feelings of hopelessness about one's future and one's ability to cope with the present. Results presented in Chapter 3 further suggest that psychache may be more important than hopelessness to the development of suicidality. When psychache and hopelessness were

orthogonalized by the creation of groups with extreme scores on these measures, several suicide criteria, including suicide ideation and reasons for suicide, were predicted by differences in levels of psychache, but not by fluctuations across individuals in levels of hopelessness. These findings indicate that psychache is a stronger predictor of these suicide criteria than hopelessness, which is consistent with both previous research (Holden et al., 2001) as well as theory (Shneidman, 1993).

3. Psychache is necessary, but not necessarily sufficient, for suicide.

The study presented in Chapter 3 aimed to test hypotheses that psychache is (1) necessary for suicide, as expressed by Shneidman's (1993) claim that all suicides involve psychological pain, and (2) sufficient for suicide, as suggested by the claim that psychache should mediate all other psychological predictors of suicide (Shneidman, 1993). Results supported the first hypothesis, as suicidality significantly increased for groups with higher levels of psychache, but did not vary by level of hopelessness independent of psychache. However, the hypothesis that psychache is a sufficient psychological cause of suicide was not consistently supported. On some suicide criteria, the combination of high hopelessness and high psychache did not result in significantly higher suicidality scores relative to those associated with high psychache alone, thus suggesting that psychache is a sufficient psychological condition for suicide. However, SBQ measures of suicidality did not significantly differ by level of psychache alone, but were significantly higher compared to a non-distressed control group only for the group with both high psychache and high hopelessness. In addition, the longitudinal study in Chapter 2 showed that change in suicide ideation was predicted by both change in psychache and change in hopelessness, and psychache did not fully mediate the

relationship between hopelessness and suicide ideation. Taken together, these results suggest that psychache alone is not sufficient for suicide, and hopelessness is also required. However, the results also highlight potential differences depending on the suicide criteria being considered. Consequently, psychache may be sufficient for some manifestations of suicidality, but not others.

General Limitations and Future Research

The two studies presented in this dissertation share certain limitations that limit the generalizability of their results. First, the two studies employed university student samples comprised of mostly young, relatively non-suicidal, Caucasian women. Although psychache has shown significant associations with suicidality in samples of students (Holden et al., 2001), prison inmates (Mills, Green, & Reddon, 2005), and suicidal inpatients (Orbach, Mikulincer, Gilboa-Schechtman, et al., 2003), it is not readily known the degree to which results of the present studies may be applied to other populations or diagnostic groups. Given that floor effects in the current samples may have attenuated the strength of the relationships of the observed variables, it is not known to what extent psychache contributes to the development of suicidality, or its importance in relation to hopelessness, in clinical samples with increased suicidal risk. This limitation on the generalizability of the results to other populations may be somewhat moderated by evidence from the research on depression, which finds similar patterns of results for clinical and student analogue samples (Vredenburg et al., 1993). Nonetheless, such interchangeability has yet to be shown in relation to psychache and suicide, and more research is needed to explore the contribution of psychache to suicidality in clinical and community-based samples.

In addition, given that female participants comprised a majority of the samples investigated, it is not known how gender may have influenced the results. No gender differences were found with respect to baseline measures in Chapter 2, or group composition in Chapter 3; however, the small number of male participants precluded further analyses of any moderating effects of gender in either the longitudinal associations in Chapter 2 or group differences in Chapter 3. Previous research has shown that psychache is associated with suicidality in both female students (Holden et al., 2001) and male inmates (Mills et al., 2005), but epidemiological studies also show different patterns of suicidality among men and women, in that women are more likely to attempt suicide whereas men are more likely to complete suicide (Moscicki, 1999). Thus, it is important for future research to address the potentially different roles that psychache may have in the development of suicidality among men and women.

Finally, the role of cultural influences in suicidality is rarely addressed in the research and the present samples were largely Caucasian. Epidemiological studies show cultural differences in rates of suicide. For example, in Canada, Francophone Whites and Aboriginals show greater rates of suicidality than Anglophone Whites, visible minorities, or foreign-born Whites (Clarke, Colantonio, Rhodes, & Escobar, 2008). In addition, cultural differences in terms of the influences of income, comorbidities, and social support on suicidality were also present. Similarly, Vanderwerker et al. (2007) showed that White and African American patients at risk for suicide differed with respect to their risk factors for suicide, such that suicidality was predicted by anxiety disorders and young age among Whites and social support among African Americans; and Joe, Romer, and Jamieson (2007) reported that some ethnic groups are more accepting of suicide than

others. These findings strongly suggest that culture affects not only rates of suicide, but also the pathways to suicidality, and research should begin to address how the relationship between psychache and suicidality is affected by cultural factors. Some studies provide preliminary evidence that the importance of psychache for suicide may be universal. Kim and Kim (2008), for example, reported a high rate of suicide attempts among Korean adolescents (11.6%), and found that need frustration differentiated attempters from non-attempters. The frustration of psychological needs has been theorized by Shneidman (1993) to be the general cause of psychache. Studies in Brazil (Berlim et al., 2003) and Israel (Orbach, Mikulincer, Gilboa-Schechtman, et al., 2003) have also shown that psychache is a significant predictor of suicidality. Future research should make use of larger, multi-ethnic samples in order to enable comparisons between cultural groups in terms of the importance of psychache to the development of suicidality relative to other psychological and non-psychological predictors.

A second limitation of the present studies involves the use of suicide ideation and past suicidality as proxies for suicide. Given the low base rate of suicide attempts, the use of alternative indicators of suicidality is common in the literature (Lester, Beck, & Trexler, 1975). The use of such measures is buttressed by the logical argument that thinking about suicide precedes a suicide attempt or completion, as well as epidemiological evidence that suicide ideation and planning are significant risk factors for suicide attempts, and represent the beginning steps in a progression to suicide (Kessler et al., 2005; Nock et al., 2008). Given the need for suicide prevention and early intervention strategies, such indicators of suicidality are themselves of interest and warrant investigation. Nonetheless, full understanding of the suicide phenomenon, and

the role of psychache in its development and prediction, can only be gained from the study of the full range of suicidal manifestations, including attempts and completions. Long-term, large-sample studies, such as the hopelessness studies of Beck and colleagues (e.g., Beck et al., 1985), are necessary to examine the association between psychache and eventual suicides.

In addition, the studies were limited by their reliance on self-report measures of suicidality and distress. The exclusive use of self-report measures may be problematic in light of the results of one study (Klimes-Dougan et al., 2007), which found that over one-third of individuals who previously reported suicidal thoughts or attempts failed to recall this content six years later. Furthermore, the study also found that these individuals were less symptomatic and better functioning than those who accurately recalled past suicidality at follow-up. Indeed, this study shows that self-reported suicidality may not always be accurate, and may be confounded by individuals' current level of distress. In contrast, in their review of suicide assessment instruments, Range and Knott (1997) suggested that self-report measures may provide more accurate assessments of suicidality than clinician-rated versions because they are less constrained by social desirability factors. Given the potential for contradictions and inaccuracies, the study of psychache and suicide cannot rely solely on self-report, and future studies should also employ externally-validated suicide criteria such as clinical ratings of suicide risk or death certificates.

Finally, this dissertation does not address the potential entirety of suicide phenomena. Durkheim's (1897/1951) typology of suicide according to social influences identifies *altruistic suicide* as a consequence of an individual's deep integration within

his or her society, to the point where society's needs take precedence over the individual's needs. In this type of suicide, the purpose of death is the benefit of the society. This form of suicide has been linked with martyrdom, military heroism, and suicide bombings (Pedahzur, Perliger, & Weinberg, 2003; Stack, 2004). Shneidman (1993) is silent with respect to psychache in relation to altruistic suicide. In fact, the mental health field in general does not seem to concern itself with this form of suicide. For example, a search on PsycInfo for the term "altruistic suicide" yielded only 27 peer-reviewed publications, very few of which were empirical studies. This may be due to the relative rarity of such suicides, the fact that such individuals do not seek help from mental health practitioners, or the belief that this form of suicide does not involve a psychological disturbance (Stack, 2004). It is not known to what extent individuals who engage in altruistic suicide are distressed, hopeless, or under psychological pain; and further explorations of individual differences in altruistic suicides is an important avenue for future research.

Theoretical and Clinical Implications

The findings of the present studies generally support Shneidman's (1993) theory, and add to our understanding of the psychological mindset that leads individuals to want to end their lives. Results support Shneidman's (1993) assertion that there is no suicide without psychache, as suicidality was consistently associated with psychache in both longitudinal and cross-sectional studies. However, the claim that other suicidogenic psychological factors are subordinate to psychache was not supported, as hopelessness continued to make significant and unique contributions to the prediction of suicidality.

Thus, suicidality is better conceptualized as a result of unbearable psychological pain, together with other contributing factors such as hopeless cognitions about the future.

These findings reflect the common themes uncovered by Beck (1963) in his interviews with suicidal patients of a wish to escape from unbearable suffering and a sense of hopelessness about their situations. Shneidman (1992, 2005) viewed hopelessness as the common emotion in suicide, although his argument that the contribution of hopelessness to suicide would be fully mediated by psychache (Shneidman, 2005) was not currently supported. An independent contribution of hopelessness does, however, fit with his stipulation that suicide occurs when individuals are cognitively constricted, and see no other way to end their pain but death. The alignment of hopelessness with Shneidman's (1993) concept of cognitive constriction is more congruent with current cognitive conceptualizations of hopelessness (Abramson et al., 1989; Ellis & Rutherford, 2008), and is also consistent with the results of the present studies.

Results provide strong support for the key role of psychache in suicidality and, consequently, the theory that suicide is an individual's desperate attempt to end this pain. This view of suicide as escape from pain has been expressed in other theories, such as Baumeister's (1990) escape theory of suicide, and the cry of pain model (O'Connor, 2003). Both of these theories implicitly acknowledge the role of psychological pain, viewing suicide as an escape from painful self-awareness (Baumeister, 1990) or painful defeat and entrapment (O'Connor, 2003). In addition to providing theoretical support for the role of psychological pain in suicide, the present studies demonstrate that, as an operationalized construct, psychache has value as a statistical predictor of suicidality.

Authors have expressed a need for reliable direct and indirect measures of suicidality (Oravecz & Moore, 2006; Rudd et al., 2006), and results clearly indicate the value in assessing both hopeless cognitions and psychache in gauging suicide risk. More research is needed to validate the use of psychache measures in clinical samples, but given its brevity and excellent psychometric properties, Holden et al.'s (2001) Psychache Scale shows promise as a clinical tool. Future research with suicide attempts and completions will be useful in helping to establish norms and cutoff criteria that can serve as guidelines in the interpretation of this measure.

The results presented in this thesis also have implications for the treatment of suicidal individuals. Currently, psychotherapeutic approaches to suicidality have conceptualized suicide as a form of problematic coping or problem-solving behaviour (Ellis & Rutherford, 2008; Jobes & Drozd, 2004). Such an approach is consistent with Shneidman's theory, insofar as they both view suicide as an inability to cope with or tolerate a painful or inescapable situation. Cognitive behavioural therapies (CBT) that address problem-solving deficits have shown to be effective in reducing suicidality and preventing suicide attempts (Brown et al., 2005; Eskin, Ertekin, & Demir, 2008; Tarrier, Taylor, & Gooding, 2008), although the long-term success of these interventions has been questioned (Rudd, Joiner, Jobes, & King, 1999). However, whereas these CBT treatments focus on correcting maladaptive coping behaviours aimed at escaping from pain, Shneidman (2005) advocated for the therapeutic reduction of the pain itself. Shneidman (2005) prescribed the use of *anodynic psychotherapy*, the purpose of which is to reduce or alleviate patients' psychological pain, thereby reducing suicidality. According to Shneidman (2005), the goal of anodynic psychotherapy is twofold: (1) to

address the frustrated psychological needs that create psychache, and (2) to help patients cope with psychological pain by redefining their intolerable pain as somehow bearable. Although he did not elaborate further on the particular therapeutic techniques that should be used, what Shneidman (2005) emphasized was the explicit focus by the therapist on individuals' psychological pain and attention to frustrated needs as the source of this pain.

The goals of anodynic therapy may be adapted to therapeutic approaches currently in use. For example, the frustration of psychological needs may be addressed therapeutically within a CBT framework as the activation of negative underlying assumptions (Greenberger & Padesky, 1995). In this case, a frustrated need for affiliation may be represented by a cognitive statement such as "If friends don't return my phone call, then that means they do not like me," which can then be objectively tested using behavioural experiments. Alternatively, employing a solution-focused approach (De Jong & Berg, 2007), the client and therapist can work creatively to generate concrete ways to fulfill needs that the client perceives are not being met. In addition, CBT may be well-suited to help clients cope with psychological pain by reframing catastrophic thoughts that the pain is unbearable, or that suicide is the *only* escape. In particular, CBT approaches that integrate a mindfulness meditation component (Williams et al., 2006) may be particularly helpful in promoting clients' acceptance of psychological pain. Finally, given the potential experiential and neurophysiological similarities between physical and psychological pain, psychological treatments that have been shown to be effective in the management of chronic physical pain (e.g., hypnotic inductions for analgesic or distracting effects; Syrjala & Abrams, 2002) may also be useful for the

alleviation of psychache. Given the prevalence and importance of psychache to suicide, such anodynic therapeutic approaches may prove particularly effective, and are worthy of future development and research.

Summary and Conclusions

This research contributes to the understanding of the psychological factors that contribute to suicide. The two studies presented in this dissertation were formulated to test Shneidman's (1993) theory that psychache, or psychological pain, is the key cause of suicide. In Chapter 2, results of a longitudinal study were presented that addressed limitations of prior research and showed that temporal changes in psychache and hopelessness are associated with change in suicide ideation. In Chapter 3, results supported the hypothesis that psychache is a necessary condition for suicidality. Overall, the results show that psychache contributes to the development of suicidality and is at least as important as hopelessness in the assessment of suicide risk. This research has implications for clinical practice. As a predictor of suicide risk, psychache provides significant information in addition to previously established psychological factors. Psychache also shows promise as a target for intervention in the prevention and management of suicide. Future research should build upon the current findings and address the limitations of the present studies by examining the role of psychache in clinical and other, more varied, samples; its relation to eventual suicide attempts and completions; and its role in the context of a larger, multi-faceted theoretical framework that integrates biological and social factors.

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Appendix A
Materials and Measures

Study 1 – Letter of Information

INFORMATION SHEET FOR PARTICIPANTS

This study is being conducted by Ricardo Flamenbaum, under the supervision of Dr. Ronald R. Holden, and is sponsored by the Queen's University Department of Psychology.

This research investigates the motives that people have for attempting to end their lives. By better understanding the psychological factors associated with self-harm, it is hoped that people at risk for self-harm may be understood, identified, and treated more effectively. You will be asked to complete a few online questionnaires which should take approximately 20 minutes. This study is a follow-up to a questionnaire you completed during the PSYC 100 prescreening approximately four months ago. Your responses will allow us to compare how feelings and motivations relate to suicidal thoughts and behaviours over time.

There are no known risks associated with this study. However, there is a possibility that you may feel uncomfortable with the kind of information we ask for. You are free to stop participating at any time without any consequences on your academic standing at Queen's University. If you experience any psychological discomfort or distress from participating in this study you may contact the Queen's University Student Counselling Centre (533-2506). It would be greatly appreciated if you would answer ALL questions as honestly as possible. However, you should not feel obligated to answer any questions that you find objectionable or that make you feel uncomfortable. As a thank you for your participation, you will be entered into a draw for a 30 GB iPod. In addition, every 50 participants will be entered in a draw to win \$50.

In order to ensure the confidentiality of all information collected, only the research supervisor and his research associates, who may access this data for future use, will see your responses. Any publications or presentations at scientific conferences based on this research will be of general findings only, and will not breach personal confidentiality.

If you would like further information about the study, or have additional questions or concerns, please feel free to contact me, Ricardo Flamenbaum, email 2rf3@qmlink.queensu.ca, or my supervisor, Dr. Ronald R. Holden, (613) 533-2879, email holdenr@post.queensu.ca. You may also contact the Head of the Department of Psychology at Queen's University, (613) 533-2492, or the Chair of the Queen's University General Research Ethics Board at (613) 533-6081 or email ChairGREB@post.queensu.ca.

Thank you for your participation!

Sincerely,

Ricardo Flamenbaum

Study 2 – Letter of Information

INFORMATION SHEET FOR PARTICIPANTS

This study is being conducted by Ricardo Flamenbaum, under the supervision of Dr. Ronald R. Holden, and is sponsored by the Queen's University Department of Psychology.

This research investigates the motives that people have for attempting to end their lives. By better understanding the psychological factors associated with self-harm, it is hoped that people at risk for self-harm may be understood, identified, and treated more effectively. You will be asked to complete a number of questionnaires printed in the "Questionnaire Booklet," which should take approximately 45 to 60 minutes. The purpose of this study is to obtain information about the importance of feelings, thoughts, and motivations for the understanding of self-harm, in general, and previous suicide attempts, in particular.

There are no known risks associated with this study. However, there is a possibility that you may feel uncomfortable with the kind of information we ask for. You are free to stop participating at any time without any consequences on your academic standing at Queen's University. If you experience any psychological discomfort or distress from participating in this study please let the researcher know. You will be awarded 1% course credit for your participation in this study whether you complete it or not. It would be greatly appreciated if you would answer ALL questions as honestly as possible. However, you should not feel obligated to answer any questions that you find objectionable or that make you feel uncomfortable.

In order to ensure the confidentiality of all information collected, please do NOT put your name, address, or any personally identifying information on the questionnaires. Only the research supervisor and his research associates, who may access this data for future use, will see your responses. Any publications or presentations at scientific conferences based on this research will be of general findings only, and will not breach personal confidentiality.

If you would like further information about the study, or have additional questions or concerns, please feel free to contact me, Ricardo Flamenbaum, email 2rf3@qmlink.queensu.ca, or my supervisor, Dr. Ronald R. Holden, (613) 533-2879, email holdenr@post.queensu.ca. You may also contact the Head of the Department of Psychology at Queen's University, (613) 533-2492, or the Chair of the Queen's University General Research Ethics Board at (613) 533-6081 or email ChairGREB@post.queensu.ca.

Thank you for your participation!

Sincerely,
Ricardo Flamenbaum

Study 1 – Consent Form

Testing Shneidman's Theory of Suicide: Psychache as a Prospective Predictor of Suicidality and Comparison with Hopelessness

I have read the Letter of Information and any questions or concerns I had have been answered satisfactorily.

I understand that I will be participating in the study entitled, *Testing Shneidman's Theory of Suicide: Psychache as a Prospective Predictor of Suicidality and Comparison with Hopelessness* and that my involvement will consist of completing an online questionnaire.

I understand that this is a follow-up to the prescreening questionnaire I completed in September, and the purpose of this research is to study how feelings and motivations relate to self-harm over time.

I am aware that I can contact the researcher, Ricardo Flamenbaum, his supervisor, Dr. Ronald R. Holden, the Head of the Department of Psychology, or the General Research Ethics Board for Queen's University if I have any subsequent questions, concerns, or complaints.

I understand that my participation is completely voluntary, that I am not obligated to answer any questions that I find objectionable or that make me feel uncomfortable, and that I am free to withdraw at any time without affecting my scholastic standing at Queen's University or entry in the draw for prizes.

I have been assured that my responses will be held confidential.

Please click on the button below to indicate your consent:

Study 2 – Consent Form

Testing Shneidman's Theory of Suicide: Psychache as a Prospective Predictor of Suicidality and Comparison with Hopelessness

I have read the Letter of Information and any questions or concerns I had have been answered satisfactorily.

I understand that I will be participating in the study entitled, *Testing Shneidman's Theory of Suicide: Psychache as a Prospective Predictor of Suicidality and Comparison with Hopelessness* and that my involvement will consist of completing a questionnaire booklet.

I understand that the purpose of this research is to study how feelings, thoughts, and motivations relate to self-harm.

I am aware that I can contact the researcher, Ricardo Flamenbaum, his supervisor, Dr. Ronald R. Holden, the Head of the Department of Psychology, or the General Research Ethics Board for Queen's University if I have any subsequent questions, concerns, or complaints.

I understand that my participation is completely voluntary, that I am not obligated to answer any questions that I find objectionable or that make me feel uncomfortable, and that I am free to withdraw at any time without losing research participation credit or affecting my scholastic standing at Queen's University.

I have been assured that my responses will be held confidential.

Name: _____

Date: _____

Signature: _____

Study 1 – Debriefing Sheet

Testing Shneidman’s Theory of Suicide: Psychache as a Prospective Predictor of Suicidality and Comparison with Hopelessness

Assessing the causes of self-harm is a critical issue for mental health practitioners and researchers. Enhanced understanding of these causes may lead to appropriate recognition of and assistance for individuals with self-harming tendencies. The present research examines various psychological factors (i.e., feelings, thoughts, and motivations) for their relevance in understanding self-destructive wishes, thoughts, and behaviours. More specifically, this study is a follow-up assessment on measures completed during the PSYC 100 prescreening four months ago. Having these two time points of assessment will allow us to examine how psychological pain and hopelessness precede suicidal thoughts and behaviours.

Individual results of this research are anonymous and cannot be provided. However, if you would like a general summary of findings from this study, you may obtain them by contacting Ricardo Flamenbaum by e-mail at 2rf3@qmlink.queensu.ca, or by regular mail at:

Ricardo Flamenbaum
Department of Psychology
Queen’s University
Kingston, Ontario K7L 3N6

Your sharing of personal experiences in this research investigation is appreciated. If the recounting of your experiences has led you to feel distressed and you would like to speak to someone about your thoughts, you are encouraged to contact a local health practitioner (e.g., your physician) in your community. Alternatively, please contact any of the following (in Kingston, Ontario):

Student Counseling, Queen’s University (613) 533-2506
Telephone Aid Line Kingston (TALK) (613) 544-1771
Crisis Line (24 hr.) (613) 544-4229
Hotel Dieu Hospital Emergency Psychiatry (613) 546-1240
Canadian Mental Health Association (613) 549-7027

Again, I would like to thank you for your participation in this study. If you have any further questions or concerns, please feel free to contact me, Ricardo Flamenbaum [E-mail: 2rf3@qmlink.queensu.ca], Department of Psychology, Queen’s University, Kingston, Ontario K7L 3N6, or my supervisor, Dr. Ronald R. Holden [Telephone: (613) 533-2879; E-mail: holdenr@psyc.queensu.ca], Department of Psychology, Queen’s University, Kingston, Ontario K7L 3N6. Concerns may also be addressed by contacting the Head of the Department of Psychology at (613) 533-2492 or the General Research Ethics Board for Queen’s University at (613) 533-6081.

For further reading, the following articles may be of interest:

- Johns, D., & Holden, R. R. (1997). Differentiating suicidal motivations and manifestations in a nonclinical population. *Canadian Journal of Behavioural Science, 29*, 266-274.
- Shneidman, E. S. (1993). Suicide as psychache. *Journal of Nervous and Mental Disease, 181*, 147-149.
- Shneidman, E. S. (2001). Suicidology and the university: A founder’s reflections at 80. *Suicide and Life-Threatening Behavior, 31*, 1-8.

Study 2 – Debriefing Sheet

Testing Shneidman’s Theory of Suicide: Psychache as a Prospective Predictor of Suicidality and Comparison with Hopelessness

Assessing the causes of self-harm is a critical issue for mental health practitioners and researchers. Enhanced understanding of these causes may lead to appropriate recognition of and assistance for individuals with self-harming tendencies. The present research examines various psychological factors (i.e., feelings, thoughts, and motivations) for their relevance in understanding self-destructive wishes, thoughts, and behaviours. More specifically, this study examines how feelings of psychological pain and hopelessness are differentially related to suicidal thoughts and behaviours.

Individual results of this research are anonymous and cannot be provided. However, if you would like a general summary of findings from this study, you may obtain them by contacting Ricardo Flamenbaum by e-mail at 2rf3@qmlink.queensu.ca, or by regular mail at:

Ricardo Flamenbaum
Department of Psychology
Queen’s University
Kingston, Ontario K7L 3N6

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Sample Recruitment Email for Study 1

Dear PSYC 100 student,

In September you completed a prescreening questionnaire during class time. We are now collecting data for a follow-up on part of that questionnaire. The purpose of this research is to investigate how feelings and motivations relate to self-harming thoughts and behaviours. Because we are interested in the relationship of these factors over time, we would really appreciate your participation this second time.

The online questionnaire takes about 20 minutes to complete, and is completely anonymous. As thank you for your participation, you will be entered in a draw to win a **30 GB video iPod**. In addition, every 50 participants will be entered in a draw for **\$50.00**.

Please follow the link below to begin the questionnaire:

www.surveymonkey.com

Thank you again for your participation!

Ricardo Flamenbaum, M.A.
Personality Assessment Laboratory
Department of Psychology
Queen's University
Kingston, ON K7L 3N6

Email: 2rf3@qlink.queensu.ca

Demographic Sheet

Please do **NOT** write your name anywhere in this booklet.

Please begin by providing the following information:

Age: _____ Gender: _____ Today's Date: _____

Have you ever attempted suicide (circle one)? YES NO

If YES, how long ago was your most recent attempt?

If YES, how did you attempt to kill yourself in this attempt?

If YES, how intent were you on killing yourself in this most recent attempt (circle one)?

NOT VERY INTENT	SOMEWHAT INTENT	MODERATELY INTENT	QUITE INTENT	EXTREMELY INTENT
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How many suicide attempts have you made in your entire lifetime?

BDI

This questionnaire consists of 21 groups of statements. After reading each group of statements carefully, circle the number (0, 1, 2, or 3) next to the one statement in each group which **best** describes the way you have been feeling the **past week, including today**. If several statements within a group seem to apply equally well, circle each one. **Be sure to read all the statements in each group before making your choice.**

1. 0 I do not feel sad.
1 I feel sad.
2 I am sad all the time and I can't snap out of it.
3 I am so sad or unhappy that I can't stand it.
2. 0 I am not particularly discouraged about the future.
1 I feel discouraged about the future.
2 I feel I have nothing to look forward to.
3 I feel that the future is hopeless and that things cannot improve.
3. 0 I do not feel like a failure.
1 I feel I have failed more than the average person.
2 As I look back on my life, all I can see is a lot of failures.
3 I feel I am a complete failure as a person.
4. 0 I get as much satisfaction out of things as I used to.
1 I don't enjoy things the way I used to.
2 I don't get real satisfaction out of anything anymore.
3 I am dissatisfied or bored with everything.
5. 0 I don't feel particularly guilty.
1 I feel guilty a good part of the time.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.
6. 0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.
7. 0 I don't feel disappointed in myself.
1 I am disappointed in myself.
2 I am disgusted with myself.
3 I hate myself.
8. 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.
9. 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would like to kill myself if I had the chance.

10. 0 I don't cry any more than usual.
 1 I cry more now than I used to.
 2 I cry all the time now.
 3 I used to be able to cry, but now I can't cry even though I want to.
11. 0 I am not more irritated now than I ever am.
 1 I get annoyed or irritated more easily than I used to.
 2 I feel irritated all the time now.
 3 I don't get irritated at all by the things that used to irritate me.
12. 0 I have not lost interest in other people.
 1 I am less interested in other people than I used to be.
 2 I have lost most of my interest in other people.
 3 I have lost all of my interest in other people.
13. 0 I make decisions about as well as I ever could.
 1 I put off making decisions more than I used to.
 2 I have greater difficulty in making decisions than before.
 3 I can't make decisions at all anymore.
14. 0 I don't feel I look any worse than I used to.
 1 I am worried that I am looking old or unattractive.
 2 I feel that there are permanent changes in my appearance that make me look unattractive.
 3 I believe that I look ugly.
15. 0 I can work about as well as before.
 1 It takes an extra effort to get started at doing something.
 2 I have to push myself very hard to do anything.
 3 I can't do any work at all.
16. 0 I can sleep as well as usual.
 1 I don't sleep as well as I used to.
 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
 3 I wake up several hours earlier than I used to and cannot get back to sleep.
17. 0 I don't get more tired than usual.
 1 I get tired more easily than I used to.
 2 I get tired from doing almost anything.
 3 I am too tired to do anything.
18. 0 My appetite is no worse than usual.
 1 My appetite is not as good as it used to be.
 2 My appetite is much worse now.
 3 I have no appetite at all anymore.
19. 0 I haven't lost much weight, if any, lately.
 1 I have lost more than 5 pounds.
 2 I have lost more than 10 pounds.
 3 I have lost more than 15 pounds.
- I am purposely trying to lose weight by eating less. Yes _____ No _____
20. 0 I am no more worried about my health than usual.
 1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
 2 I am very worried about physical problems and it's hard to think of much else.
 3 I am so worried about my physical problems that I cannot think about anything else.

21. 0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

BHS

Below you will find a series of statements that a person might use to describe himself/herself. Please read each statement and decide whether or not it describes you. Then circle your answer beside each statement. If you agree with a statement or decide it describes you, circle **T** for **TRUE**. If you disagree with a statement or decide it does not describe you, circle **F** for **FALSE**. Please try to answer every statement either true or false, even if you are not completely sure of your answer.

- | | | |
|--|----------|----------|
| 1. I look forward to the future with hope and enthusiasm. | T | F |
| 2. I might as well give up because I can't make things better for myself. | T | F |
| 3. When things are going badly, I am helped by knowing they can't stay that way forever. | T | F |
| 4. I can't imagine what my life would be like in 10 years. | T | F |
| 5. I have enough time to accomplish the things I most want to do. | T | F |
| 6. In the future, I expect to succeed in what concerns me most. | T | F |
| 7. My future seems dark to me. | T | F |
| 8. I expect to get more of the good things in life than the average person. | T | F |
| 9. I just don't get the breaks, and there's no reason to believe I will in the future. | T | F |
| 10. My past experiences have prepared me well for my future. | T | F |
| 11. All I can see ahead of me is unpleasantness rather than pleasantness. | T | F |
| 12. I don't expect to get what I really want. | T | F |
| 13. When I look ahead to the future, I expect I will be happier than I am now. | T | F |
| 14. Things just won't work out the way I want them to. | T | F |
| 15. I have great faith in the future. | T | F |
| 16. I never get what I want so it's foolish to want anything. | T | F |
| 17. It is very unlikely that I will get any real satisfaction in the future. | T | F |
| 18. The future seems vague and uncertain to me. | T | F |
| 19. I can look forward to more good times than bad times. | T | F |
| 20. There's no use in really trying to get something I want because I probably won't get it. | T | F |

The Psychache Scale

The following statements refer to your psychological pain, NOT your physical pain. By circling the appropriate number, please indicate how frequently each of the following occur.

	1 = Never;	2 = Sometimes;	3 = Often;	4 = Very Often;	5 = Always
	Never	Sometimes	Often	Very Often	Always
1. I feel psychological pain.	1	2	3	4	5
2. I seem to ache inside.	1	2	3	4	5
3. My psychological pain seems worse than any physical pain.	1	2	3	4	5
4. My pain makes me want to scream.	1	2	3	4	5
5. My pain makes my life seem dark.	1	2	3	4	5
6. I can't understand why I suffer.	1	2	3	4	5
7. Psychologically, I feel terrible.	1	2	3	4	5
8. I hurt because I feel empty.	1	2	3	4	5
9. My soul aches.	1	2	3	4	5

Please continue this inventory using the following scale:

	1 = Strongly Disagree;	2 = Disagree;	3 = Unsure;	4 = Agree;	5 = Strongly Agree
	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
10. I can't take my pain any more.	1	2	3	4	5
11. Because of my pain, my situation is impossible.	1	2	3	4	5
12. My pain is making me fall apart.	1	2	3	4	5
13. My psychological pain affects everything I do.	1	2	3	4	5

BSS

Please carefully read the following 19 statements and, for each, circle the most appropriate response for you.

1. How strong is your wish to live?
 - a) **Moderate to strong.**
 - b) **Weak.**
 - c) **None.**

2. Do you have any wish to die?
 - a) **None.**
 - b) **Some weak desire.**
 - c) **Moderate to strong desire.**

3. In considering your reasons for living and dying:
 - a) **the reasons for living outweigh the reasons for dying.**
 - b) **the reasons for living equal the reasons for dying.**
 - c) **the reasons for dying outweigh the reasons for living.**

4. Do you have any desire to attempt to end your life?
 - a) **None.**
 - b) **I have some weak desire.**
 - c) **I have at least moderate desire.**

5. If for any reason your life was endangered and you were in a position to intervene, would you:
 - a) **take the necessary action to save your life?**
 - b) **leave the final result of life and death to chance?**
 - c) **avoid any steps which could be taken to save your life?**

6. For what duration have you had thoughts of taking your own life?
 - a) **If at all, they have been at the most brief, passing thoughts.**
 - b) **They have persisted longer than the occasional passing thought.**
 - c) **They are continuously on my mind,**

7. How frequently have you thought of taking your own life?
 - a) **If at all, only on rare occasions.**
 - b) **Fairly frequently.**
 - c) **Quite often, almost all the time.**

8. How do you feel about any thoughts of ending your life you might have?
 - a) **I reject them.**
 - b) **I am unsure about them.**
 - c) **I accept them.**

9. Do you feel you can control any thoughts of ending your life you might have?
 - a) **I feel they are under my control.**
 - b) **I am unsure that I control them.**
 - c) **I have no sense of control over these wishes.**

10. Do you feel deterred from taking action to end your life by certain inhibiting factors (e.g., family, religious beliefs) within it?
 - a) **I would not attempt to end my life because of deterrents.**
 - b) **I am moderately inhibited from ending my life by deterrents.**
 - c) **I am unconcerned about any deterrent.**

11. What reasons could you have for attempting to end your own life?
- Only to get attention or revenge.**
 - To get attention and to escape my problems.**
 - To escape from my problems and solve them.**
12. Have you ever contemplated ending your own life to the extent of making a plan or choosing a method with which to do so?
- No, I have not considered it.**
 - Yes, but not to the extent of working out the details.**
 - Yes, I have considered and worked out a plan to do so.**
13. What opportunity would you have to end your own life?
- Very little, there is no available method or opportunity.**
 - Some, but getting an opportunity and acquiring a means to do so would take some effort.**
 - Considerable, an opportunity and means to do so are readily available.**
 - Considerable, although opportunity and means are not currently available, they would be in the future.**
14. How capable could you feel in carrying out an attempt to end your life?
- I would be too afraid, hesitant or incompetent.**
 - I would be unsure of my courage and competence.**
 - I would be quite sure of my courage and competence.**
15. Do you anticipate that you will ever make an actual attempt to end your life?
- No.**
 - I don't know; I am not quite sure.**
 - Yes.**
16. Have you ever made any preparation for any attempt to end your life?
- No, none whatsoever.**
 - Some, but not complete preparation.**
 - Yes, complete preparation for an attempt.**
17. Have you ever formulated a suicide note for yourself?
- No.**
 - I thought about one but only started composing or writing it.**
 - Yes, I completed one.**
18. Have you ever taken any actions (e.g., insurance, will) in anticipation of attempting to end your own life?
- None at all.**
 - Some, I have thought about such action and made preliminary arrangements.**
 - Considerable, I have made a definite plan or completed such arrangements.**
19. To what degree have you openly revealed any thoughts you might have of ending your life?
- I have revealed any ideas openly.**
 - I have held back on revealing any thoughts of this nature.**
 - I have kept them to myself or taken measures to conceal their knowledge from others.**

RFL

Many people have thought of suicide at least once. Others have never considered it. Whether you have considered it or not, we are interested in the reasons you would have for **not** committing suicide if the thought were to occur to you or if someone were to suggest it to you.

On the following pages are reasons people sometimes give for **not** committing suicide. We would like to know how important each of these possible reasons would be to you at this time in your life as a reason to **not** kill yourself. Please rate this in the space at the left on each question.

Each reason can be rated from 1 (Not At All Important) to 6 (Extremely Important). If a reason does not apply to you or if you do not believe the statement is true, then it is not likely important and you should put a 1. Please use the whole range of choices so as not to rate only at the middle (2, 3, 4, 5) or only at the extremes (1, 6).

In each space put a number to indicate the importance to you of each reason for **not** killing yourself.

1. Not At All Important (as a reason for **not** killing myself, or, does not apply to me, I don't believe this at all).
2. Quite Unimportant
3. Somewhat Unimportant
4. Somewhat Important
5. Quite Important
6. Extremely Important (as a reason for **not** killing myself, I believe this very much and it is very important).

Even if you never have or firmly believe you never would seriously consider killing yourself, it is still important that you rate each reason. **In this case, rate on the basis of why killing yourself is not or would never be an alternative for you.**

In each space put a number to indicate the importance to you of each for not killing yourself.

- | | | | |
|----|-----------------------------|----|---------------------------|
| 1. | Not At All Important | 4. | Somewhat Important |
| 2. | Quite Unimportant | 5. | Quite Important |
| 3. | Somewhat Unimportant | 6. | Extremely Important |
-

- _____ 1. I have a responsibility and commitment to my family.
- _____ 2. I believe I can learn to adjust or cope with my problems.
- _____ 3. I believe I have control over my life and destiny.

- | | | | |
|----|-----------------------------|----|---------------------------|
| 1. | Not At All Important | 4. | Somewhat Important |
| 2. | Quite Unimportant | 5. | Quite Important |
| 3. | Somewhat Unimportant | 6. | Extremely Important |
-

- _____ 4. I have a desire to live.
- _____ 5. I believe only God has the right to end a life.
- _____ 6. I am afraid of death.
- _____ 7. My family might believe I did not love them.
- _____ 8. I do not believe that things get miserable or hopeless enough that I would rather be dead.
- _____ 9. My family depends upon me and needs me.
- _____ 10. I do not want to die.
- _____ 11. I want to watch my children as they grow.
- _____ 12. Life is all we have and is better than nothing.
- _____ 13. I have future plans I am looking forward to carrying out.
- _____ 14. No matter how badly I feel, I know that it will not last.
- _____ 15. I am afraid of the unknown.
- _____ 16. I love and enjoy my family too much and could not leave them.
- _____ 17. I want to experience all that life has to offer and there are many experiences I haven't had yet which I want to have.
- _____ 18. I am afraid that my method of killing myself would fail.
- _____ 19. I care enough about myself to live.
- _____ 20. Life is too beautiful and precious to end it.
- _____ 21. It would not be fair to leave the children for others to take care of.
- _____ 22. I believe I can find other solutions to my problems.
- _____ 23. I am afraid of going to hell.
- _____ 24. I have a love of life.
- _____ 25. I am too stable to kill myself.
- _____ 26. I am a coward and do not have the guts to do it.
- _____ 27. My religious beliefs forbid it.
- _____ 28. The effect on my children could be harmful.

- | | | | |
|----|-----------------------------|----|---------------------------|
| 1. | Not At All Important | 4. | Somewhat Important |
| 2. | Quite Unimportant | 5. | Quite Important |
| 3. | Somewhat Unimportant | 6. | Extremely Important |
-

- _____ 29. I am curious about what will happen in the future.
- _____ 30. It would hurt my family too much and I would not want them to suffer.
- _____ 31. I am concerned about what others would think of me.
- _____ 32. I believe everything has a way of working out for the best.
- _____ 33. I could not decide where, when, and how to do it.
- _____ 34. I consider it morally wrong.
- _____ 35. I still have many things left to do.
- _____ 36. I have the courage to face life.
- _____ 37. I am happy and content with my life.
- _____ 38. I am afraid of the actual "act" of killing myself (the pain, blood, violence).
- _____ 39. I believe killing myself would not really accomplish or solve anything.
- _____ 40. I have hope that things will improve and the future will be happier.
- _____ 41. Other people would think I am weak and selfish.
- _____ 42. I have an inner drive to survive.
- _____ 43. I would not want people to think I did not have control over my life.
- _____ 44. I believe I can find a purpose in life, a reason to live.
- _____ 45. I see no reason to hurry death along.
- _____ 46. I am so inept that my method would not work.
- _____ 47. I would not want my family to feel guilty afterwards.
- _____ 48. I would not want my family to think I was selfish or a coward.

RASQ

Please rate how much you agree with each of these statements. They describe reasons you may have had for considering an attempt to end your life. In answering, please circle one option per statement.

- | | | | | | |
|--|----------------------------|-----------------------|-----------------------|---------------------|-------------------------|
| 1. Punish myself. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 2. I seemed to lose control and have no idea why I behaved that way. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 3. Make people sorry for the way they treated me. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 4. Frighten someone. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 5. Because I was angry with someone and wanted to get back at him (her). | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 6. Seek help from someone for my nerves and my difficulties. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 7. Make people understand how I was feeling and how distressed I was. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 8. Show how much I love someone. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 9. To find out if someone loves me or not. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 10. Try to influence or change someone's mind. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 11. The situation was so unbearable I felt I had to do something and did not know what else to do. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |
| 12. Escape for a while from an impossible situation. | Completely Disagree | Agree A Little | Agree Somewhat | Almost Agree | Completely Agree |

13. To get relief from a terrible state of mind.

**Completely
Disagree**

**Agree
A Little**

**Agree
Somewhat**

**Almost
Agree**

**Completely
Agree**

14. Because I am not good enough to have accomplished anything worthwhile, I am a failure.

**Completely
Disagree**

**Agree
A Little**

**Agree
Somewhat**

**Almost
Agree**

**Completely
Agree**

SBQ

INSTRUCTIONS: Please answer every item with the number that applies to you. Please put only ONE number per space. DO NOT leave any empty spaces. If you have any questions, please ask.

1. ____ Have you thought about or attempted to kill yourself in your lifetime?

0 = No.

1 = It was just a passing thought.

2 = I briefly considered it, but not seriously.

3 = I thought about it and was somewhat serious.

4 = I had a plan for killing myself which I thought would work and seriously considered it.

5 = I attempted to kill myself, but I do not think I really meant to die.

6 = I attempted to kill myself, and I think I really hoped to die.

How often have you thought about killing yourself...

0 = Not at all

1 = Rarely

2 = Sometimes

3 = Often

4 = Very
often

2. ____ in your lifetime? (If 0, go to questions #7-11)

3. ____ in the last year? (If 0, go to questions #7-11)

4. ____ within the last 4 months? (If 0, go to questions #7-11)

5. ____ within the last month? (If 0, go to questions #7-11)

6. ____ in the last several days, including today?

Have you ever told someone that you were going to commit suicide, or that you might do it...

0 = No

1 = Yes, during one short
period of time.

2 = Yes, during more than
one period of time.

7. ____ in your lifetime? (If 0, go to questions #12)

8. ____ in the last year? (If 0, go to questions #12)

9. ____ within the last 4 months? (If 0, go to questions #12)

10. ____ within the last month? (If 0, go to questions #12)

11. ____ in the last several days, including today?

12. In the past year, have you attempted suicide or intentionally harmed or injured yourself?

0 = No (If "No," go to question #13)

1 = Yes (If "Yes," go to question #12a-12k)

Think back over the past year and try to remember what has happened.

In the last year, how many times have you attempted suicide or intentionally harmed or injured yourself? Listed below are several methods which you may have used to attempt suicide or intentionally harm yourself. Please write in the number of times you used each method and whether or not you intended to die at that time while using that method.

For example, if you cut yourself once in the last year with the intent to die, place a “1” in the “Intent to die” column on cutting yourself, if you weren’t sure about dying, place a “1” in the “Ambivalent/Not sure” column, and if you didn’t intend to die, place a “1” in the “No intent to die” column. Or, for example, if you burned yourself twice on purpose in the last year with no intent to die both times, place a “2” in the “No intent to die” column. If you didn’t use a method, please place a check in the “Didn’t do this” column.

<u>METHOD</u>	<u>NUMBER OF TIMES WITH INTENT TO DIE</u>			
	Didn't do this	Intent to die	Ambivalent/ Not sure	No intent to die
12a. cut yourself on purpose?	_____	_____	_____	_____
12b. intentionally overdosed on drugs?	_____	_____	_____	_____
12c. burned yourself on purpose?	_____	_____	_____	_____
12d. attempted to strangle or hang yourself?	_____	_____	_____	_____
12e. jumped from a high place to cause self injury?	_____	_____	_____	_____
12f. shot yourself with a gun?	_____	_____	_____	_____
12g. swallowed poisons/ caustic substances on purpose?	_____	_____	_____	_____
12h. asphyxiated/smothered yourself?	_____	_____	_____	_____
12i. tried to drown yourself?	_____	_____	_____	_____
12j. stabbed/punctured yourself on purpose?	_____	_____	_____	_____
12k. other (describe): _____	_____	_____	_____	_____
_____	_____	_____	_____	_____

What chance is there that you will consider the possibility, no matter how remote, of killing yourself...

0 1 2 3 4
No chance at all Some chance Very likely

- 13. _____ in your lifetime? (If 0, go to questions #18-22)
- 14. _____ within the next year? (If 0, go to questions #18-22)
- 15. _____ within the next 4 months? (If 0, go to questions #18-22)
- 16. _____ within the next month? (If 0, go to questions #18-22)
- 17. _____ today or in the next several days?

How likely is it that you will attempt suicide...

0 1 2 3 4
No chance at all Some chance Very likely

- 18. _____ in your lifetime? (If 0, go to questions #23-27)
- 19. _____ within the next year? (If 0, go to questions #23-27)
- 20. _____ within the next 4 months? (If 0, go to questions #23-27)
- 21. _____ within the next month? (If 0, go to questions #23-27)
- 22. _____ today or in the next several days?

If you did attempt suicide, for any reason, how likely is it that you would die as a result...

0 1 2 3 4
No chance at all Some chance Very likely

- 23. _____ in your lifetime? (If 0, go to questions #28)
- 24. _____ within the next year? (If 0, go to questions #28)
- 25. _____ within the next 4 months? (If 0, go to questions #28)
- 26. _____ within the next month? (If 0, go to questions #28)
- 27. _____ today or in the next several days?

28. Do you currently have a plan for how you would go about killing yourself, if you decided to do it?

0 = No 1 = Yes, a vague plan 2 = Yes, a definite plan

29. Sometimes people who decide to kill themselves want to do it but can't find a way to actually carry through with their plan because the means are not available to them. If you decided to kill yourself at this point in your life, would the means for carrying out such an action be available to you?

0 = No 1 = Yes, possibly 2 = Yes, definitely

30. If you decided to kill yourself at this point in your life, is there someone in your environment who would want to stop you?

0 = No 1 = Yes, to a small degree 2 = Yes, very much so

31. Some individuals say they cannot even imagine or conceive of the idea of attempting or committing suicide. For these people, suicidal behaviour is as alien as the thought of becoming a tree or lifting the Empire State Building. Other people, even though they might never actually consider the idea, can at least imagine the idea of attempting or considering suicide. Which group of people do you belong to?

0 = Group who definitely can't imagine 1 = Group who can somewhat imagine 2 = Group who can definitely imagine

32. Would any of your problems be solved if you committed suicide?

0 1 2 3 4
No, definitely not Maybe Yes, definitely

33. Thinking about the way your life is today, that is, give the good things in your life now and any problems you might be having. IF you knew the QUALITY of your life would never change, that is, it would never get better or worse, do you feel that suicide would be a good way out?

0 1 2 3 4
No, definitely not Maybe Yes, definitely

34. If the QUALITY of your life were to get worse (very bad), do you feel that attempting suicide would solve any of your problems?

0 1 2 3 4
No, definitely not Maybe Yes, definitely

Questions 35 to 90 are concerned with consequences on you if, in the future, you ever INTENTIONALLY INJURE YOURSELF OR ATTEMPT SUICIDE (but do not die). On each scale below, indicate what effect INTENTIONALLY INJURING YOURSELF OR ATTEMPTING SUICIDE would have on you. How would you feel afterwards?

For example, on the “happy-sad” question, you would place a check on the line close to “happy” if injuring yourself or attempting suicide would make you happier, by “sad” if it would make you sadder, or in the middle if it would have neither effect.

35. happy	_____	_____	_____	_____	_____	sad
36. tense	_____	_____	_____	_____	_____	relaxed
37. superior	_____	_____	_____	_____	_____	inferior
38. active	_____	_____	_____	_____	_____	passive
39. loud	_____	_____	_____	_____	_____	quiet
40. alert	_____	_____	_____	_____	_____	dull
41. inhibited	_____	_____	_____	_____	_____	uninhibited
42. afraid	_____	_____	_____	_____	_____	unafraid
43. depressed	_____	_____	_____	_____	_____	elated
44. peaceful	_____	_____	_____	_____	_____	restless
45. daring	_____	_____	_____	_____	_____	cautious
46. efficient	_____	_____	_____	_____	_____	inefficient
47. sleepy	_____	_____	_____	_____	_____	wide awake
48. patient	_____	_____	_____	_____	_____	impatient
49. clumsy	_____	_____	_____	_____	_____	coordinated
50. excited	_____	_____	_____	_____	_____	calm
51. secure	_____	_____	_____	_____	_____	insecure
52. weak	_____	_____	_____	_____	_____	strong

53. dominant	_____	_____	_____	_____	_____	submissive
54. discreet	_____	_____	_____	_____	_____	indiscreet
55. bored	_____	_____	_____	_____	_____	interested
56. polite	_____	_____	_____	_____	_____	rude
57. talkative	_____	_____	_____	_____	_____	reticent
58. self-critical	_____	_____	_____	_____	_____	self-accepting
59. careful	_____	_____	_____	_____	_____	careless
60. quick responses	_____	_____	_____	_____	_____	slow responses
61. obedient	_____	_____	_____	_____	_____	defiant
62. outgoing	_____	_____	_____	_____	_____	reserved
63. good concentration	_____	_____	_____	_____	_____	poor concentration
64. aggressive	_____	_____	_____	_____	_____	unaggressive
65. frustrated	_____	_____	_____	_____	_____	satisfied
66. responsible	_____	_____	_____	_____	_____	irresponsible
67. emotional	_____	_____	_____	_____	_____	unemotional
68. more sexual	_____	_____	_____	_____	_____	less sexual
69. more humorous	_____	_____	_____	_____	_____	less humorous
70. self-conscious	_____	_____	_____	_____	_____	unself- conscious
71. concerned about the outcome of a task	_____	_____	_____	_____	_____	not concerned about the outcome of a task
72. ashamed	_____	_____	_____	_____	_____	proud

73. manipulative	_____	_____	_____	_____	_____	non- manipulative
74. crazy	_____	_____	_____	_____	_____	sane
75. closer to people	_____	_____	_____	_____	_____	more distant from people
76. sensitive	_____	_____	_____	_____	_____	numb
77. good	_____	_____	_____	_____	_____	bad
78. hard	_____	_____	_____	_____	_____	soft
79. hot	_____	_____	_____	_____	_____	cold
80. wise	_____	_____	_____	_____	_____	foolish
81. kind	_____	_____	_____	_____	_____	cruel
82. complex	_____	_____	_____	_____	_____	simple
83. masculine	_____	_____	_____	_____	_____	feminine
84. intentional	_____	_____	_____	_____	_____	unintentional
85. beautiful	_____	_____	_____	_____	_____	ugly
86. severe	_____	_____	_____	_____	_____	lenient
87. constrained	_____	_____	_____	_____	_____	free
88. successful	_____	_____	_____	_____	_____	unsuccessful
89. pleasurable	_____	_____	_____	_____	_____	painful
90. dead	_____	_____	_____	_____	_____	alive

Appendix B

Intercorrelations Among All Variables in the Total Sample (N = 588)

Variable	Time 1					Time 2				
	BHS 1	PSYC 1	BSS 1	SMOT 1	SPREP 1	BHS 2	PSYC 2	BSS 2	SMOT 2	SPREP 2
<u>Time 1</u>										
BHS 1	-									
PSYC 1	.51**	-								
BSS 1	.48**	.50**	-							
SMOT 1	.48**	.47**	.86**	-						
SPREP 1	.39**	.42**	.92**	.66**	-					
<u>Time 2</u>										
BHS 2	.67**	.44**	.52**	.50**	.45**	-				
PSYC 2	.38**	.55**	.47**	.41**	.43**	.63**	-			
BSS 2	.39**	.41**	.79**	.68**	.73**	.57**	.58**	-		
SMOT 2	.38**	.39**	.72**	.72**	.62**	.55**	.54**	.88**	-	
SPREP 2	.33**	.36**	.73**	.58**	.73**	.48**	.51**	.92**	.69**	-

Note. ** $p < .001$. Correlations of .10, .30, and .50 correspond to small, medium, and large effect sizes, respectively (Cohen, 1992).

BHS = Beck Hopelessness Scale; PSYC = The Psychache Scale; BSS = Beck Scale for Suicide Ideation - Total Score; SMOT = Beck Scale for Suicide Ideation - Suicidal Motivation subscale; SPREP = Beck Scale for Suicide Ideation - Suicidal Preparation subscale.

Appendix C

Descriptive Statistics for Prescreening Sample

	Possible Range	Total Sample (<i>N</i> = 1,333)			Males (<i>N</i> = 370)			Females (<i>N</i> = 940)		
		<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
Psychache	13-65	20.82	8.31	0.94	21.00	8.83	0.94	20.71	8.14	0.94
Hopelessness	0-20	3.25	3.28	0.83	3.32	3.39	0.83	3.25	3.26	0.82
BSS Total	0-36	4.37	3.93	0.78	4.93	4.34	0.78	4.16**	3.76	0.78
BSS Motivation	0-18	0.93	1.70	0.70	1.18	1.94	0.69	0.85**	1.60	0.70
BSS Preparation	0-18	2.67	2.34	0.65	2.99	2.57	0.65	2.54**	2.24	0.66

Note. ** $p < .01$, indicating a significant difference between males and females.

Appendix D

Two structural equation models showing results of additional analyses testing meditational hypotheses.

Figure D.1. Structural model ($N = 514$) showing psychache as a mediator of hopelessness and suicide ideation. PSYC 1-3 = three parcels from the Psychache Scale. BHS 1-3 = three parcels from the Beck Hopelessness Scale. SMOT = Suicidal Motivation subscale of the Beck Scale for Suicide Ideation. SPREP = Suicidal Preparation subscale of the Beck Scale for Suicide Ideation. Path coefficients and significance levels are derived from 10,000 bootstrap samples. * $p < .05$, ** $p < .01$.

Figure D.2. Structural model ($N = 514$) showing hopelessness as a mediator of psychache and suicide ideation. PSYC 1-3 = three parcels from the Psychache Scale. BHS 1-3 = three parcels from the Beck Hopelessness Scale. SMOT = Suicidal Motivation subscale of the Beck Scale for Suicide Ideation. SPREP = Suicidal Preparation subscale of the Beck Scale for Suicide Ideation. Path coefficients and significance levels are derived from 10,000 bootstrap samples. * $p < .05$, ** $p < .01$.

